INDIA RUBBER WORLD AND ELECTRICAL TRADES REVIEW

Published on the 15th of each Month by

THE INDIA RUBBER PUBLISHING CO.

No. 114 TRIBUNE BUILDING, NEW YORK, U. S. A.

JNO. R. DUNLAP. H. C. PEARSON.

Vol. 2. APRIL 15th, 1890. No. 1.

SUBSCRIPTIONS: $2.00 per year, $1.00 for six months, postpaid, for the United States and Canada. Foreign countries, $2.50. Special Rates for Clubs of five, ten or more subscribers.

ADVERTISING: Rates will be made known on application.

REMITTANCES: Should always be made by bank draft, Post Office Orders or Express Money orders on New York, payable to THE INDIA RUBBER PUBLISHING COMPANY. Remittances for foreign subscriptions should be sent by International Postal order, payable as above.

Trade supplied by the American News Co. and all its branches.

Entered at New York Post Office as second-class matter.

INDEX TO ADVERTISERS.

NAME.	PAGE.	NAME.	PAGE.
Abendroth & Root Mfg. Co	ii	Hohmann & Maurer	ix
Adamanta Mfg. Co	xx	Home Rubber Co	xxiii
American Rubber Co	xxxii	Housatonic Rubber Co	iv
Arnold, C. H. & Co	xxii	How, Lucius W	xxxi
Atlas Chemical Co	xxii	India Rubber Comb Co	xiv
Automatic Rubber Mixer Co	xvii	Kelly, W. E.	xxix
Bayaud & Stevens	ix	Knowles, C. S.	xxxi
Birmingham Foundry Co	xix	Knowles Pump Co	xxxii
Boomer & Boschert Press Co	xxvii	Lake Shore Rubber Works	xiii
Boston Belting Co	iii	Lowenthal & Morganstern	xxi
Boston Rubber Shoe Co	v	Martin L., & Co	xxvi
Boston Lead M'f'g. Co.	xxvi	Mason Regulator Co	xxvii
Boston Woven Hose Co	vii	Mattson Rubber Co	xxvi
Brook, Oliphant & Co	xi	Metropolitan Rubber Co	vi
Butler Hard Rubber Co	xiii	Murray, Whitehead & Murray	viii
Canfield, H. O	xxii	National India Rubber Co	i
Celluloid Novelty Co	xxii	National Iron Works	xxix
Cabot, Samuel	ix	N. J. Car Spring and Rubber Co	xx
Cambridge Boiler Works	iv	N. Y. Belt. and Pack. Co	ii
Chicago Rubber Clothing Co	xxx	New York Rubber Co	xi
Clark, George P.	ix	N. Y. Insulated Wire Co	xx
Clark, Edred W	xxvii	Newton Rubber Co	xxii
Clayton Air Compressor Co	i	Norwalk Iron Works Co	iv
Cleveland Rubber Co	x	Norris, Webster	iv
Combination Roll and Rubber Co	xxii	Okonite Company	iv
Davol Rubber Co	xiv	Paine, Diehl & Co	xxxi
De Long, Betts & Co	i	Para Rubber Shoe Co	xxvii
Devoe, F. W. & Co	ix	Remington Type Writer	xxxii
Erie Rubber Co	x	Revere Rubber Co	xxiv
Eureka Fire Hose Co	xxvi	Royle, John & Sons	xxvii
Goodrich Hard Rubber Co	xv	Safety Electric Construction Co.	xxxi
Goodrich, The B. F. Co	xv	Stoughton Rubber Co	xxxii
Goodyear's, I. R. G Co	xii	Taintor, H. F.	xviii
Goodyear's Rubber Mfg. Co	xii	Taylor, Edward R.	xxxi
Gutta Percha & Rub. M'f'g. Co	xxviii	Tyer Rubber Co	xvii
Hayward, J. Francis	xxvi	Wanted and For Sale	xxxi
Hazelton Boiler Co	xviii	Wheeler, Asa N	xxxi
Hodgman Rubber Co	xvi		

The March Rubber Meeting.

THE last meeting of the Rubber Boot and Shoe Manufacturers' Association, held on March 26th in the Windsor Hotel, in New York City, was attended by the usual representation of the companies in the association. At the February meeting these gentlemen were the innocent cause of creating wide-spread gossip and comment on the subject of a rubber trust, the meeting happening just at a time when rubber manufacturers were faced by the marked rise in the price of crude gum, and resulting in an agreement to advance the price of manufactured goods. Since the public mind has become disabused of the mistakes growing out of that occasion, the Rubber Boot and Shoe Manufacturers' Association has been allowed to resume its uneventful monthly meetings, ending with a good dinner, without comment.

There was some discussion, or rather informal talk, at the Windsor Hotel meeting, about prices. There was a motion made in favor of taking off the second discount of six per cent., leaving the discount at 38 per cent. on firsts, but this was not agreed to. A majority of the companies appeared to be in favor of the proposition, but as there had been so much said about cutting prices under the old discounts, it was decided to be better to establish the thirty-eight and six rate before making another advance.

According to the custom of the association in the past, the next monthly meeting, which is more of a social reunion than a business conference, will be held toward the end of the present month in the city of Boston. The idea is to alternate between that city and New York. The organization has not resulted in such a consolidation or combination on prices as was anticipated by some of the members. It has not even developed into an organization for the support of prices. Still there has been, among retailers and jobbers, a belief that a better feeling would prevail among the rubber companies on account of the occasional meetings. So far as can be learned, it is not charged that prices have been cut, but that the terms have been modified by one company so as to amount, indirectly, to a cut of about four per cent.

"Hustling" for South American Trade.

THOSE lines of manufacture in which there is the keenest competition, are the ones most likely to be pioneers in seeking new outlets for their products. For some time past it has been a debatable question as to where all the rubber goods that are made in this country, are to go; especially as new mills are constantly being erected and old mills enlarged. There is no doubt but that the United States is a good market; indeed, for foot wear, it is probably the best in the world, as all classes here are well shod; yet, with the wonderfully increased out-put of goods, other outlets must be considered.

One of the most natural markets for us to attempt to secure is South America. We are well aware that the portion of this trade that our manufacturers have had in the past, was far from being either remunerative or permanent and that in many cases it has meant interminably long credits. Yet, with the proper handling this trade may be made valuable. Indeed, the time is coming when we have *got* to have it. We are willing to take it now, but soon we will be anxious. Other trades are getting in there, and are doing it because they see that they will need this market more in the future than they do to-day. A single instance of foresight and push will be of interest. A wealthy Grand Rapids furniture house has hired a hotel in Santiago and fitted it up at a cost of $200,000 to display their furniture. It is but a few days since they shipped ten carloads of goods to that place to enable them to fill orders more quickly. Here is enterprise worthy of imitation.

The Cultivation of Rubber.

THE great demand for rubber goods of every description and the increasing price of raw material have long been productive of anxiety among manufacturers as to the source from which future supplies will have to be drawn. Great as the use of rubber has become, it is little more than a beginning. Every year the number of consumers of rubber increases, while busy inventors continue to find new uses for it. But the supply of rubber does not grow in like degree. Indeed, only this season there has been a shortage in production as compared with former years and a consequent increase of price of fifty per cent. It is time, therefore, for our rubber manufacturers to begin to be concerned about the supply of raw material further than merely to be on the alert to buy on the best terms, whatever may be imported from sources over which they have no control.

The rubber forests to-day are difficult of access, and the rude, unskilled laborers who tap the trees take no thought for the future, but either recklessly kill the trees or so mutilate them that they decay rapidly. The few people who control the rubber supply have also been careless of the future, evidently regarding the forests as inexhaustible. That such an idea is a mistaken one is proved by the fate of the gutta percha trees, formerly so abundant along the foot of the hills in the Malayan peninsula, which were speedily exterminated by the ignorant natives when a demand for the gum began to exist in the markets of the world. So the cinchona tree, from which quinine is produced, speedily began to disappear from the forests of Peru after its bark became an article of commerce, through carelessness in gathering it. A dozen years saw the American buffalo reduced in number from millions to hundreds, and now efforts are being made to protect the Arctic seal, once thought inexhaustible in number. It is true that attempts have been made by the government in Guatemala and Brazil to protect the rubber forests, but they have been rendered of little effect by the difficulty of keeping a watch upon the almost savage laborers.

The culture of rubber will soon be a live question. Plantations of rubber trees near shipping ports and under intelligent supervision are needed. What would the coffee trade of the world amount to now if the supply still depended upon the wild plant? The artificial growth of cinchona bark in the East Indies reduced the price of quinine in England within a few years from 13 shillings an ounce to 1 shilling and 6 pence, without rendering the cultivation unprofitable, to say nothing of relieving the market of the grasp of a monopoly. No other important article of commerce was ever more thoroughly controlled by monopoly than Brazilian rubber to-day, a condition which affects every rubber manufacturer and dealer.

Every condition points to the need for new sources of rubber supply. It remains to be seen how far rubber culture is practicable. The climate and soil of many other sections of the world are declared to be as suitable for rubber as in the countries where the trees now grow wild. The trees are easily propagated, since it is only necessary to push small slips into the moist sand, to have soon well-rooted trees. Some varieties grow readily from the seed also. It is asserted that a real tropical climate is not essential, but that the tree will flourish where snow sometimes falls and there are a few degrees of frost. Experiments made at the Royal Botanical gardens at Ceylon, Singapore, and Trinidad have shown the ease with which the plants can be propagated, and plants sent out from the Kew gardens in London, to the Gambia settlement, on the West coast of Africa, have produced thrifty trees. It has been suggested that the climate and soil of Southern California will be found adapted to rubber culture.

The great trouble is that the time required for the first returns from the rubber tree is greater than most farmers would find practicable. The work would have to be done, therefore, by organized capital, though in connection with other crops some return might be had from the soil during the fifteen or more years required for the rubber trees to mature. In Honduras and elsewhere rubber trees have been found capable of cultivation in connection with bananas, cocoa, coffee, oranges, and other shade-loving plants. In many countries planters are obliged to have permanent shade for these crops and generally the trees used, called "coffee-nurses," are worthless except as shade trees. By planting rubber in such cases a double profit might be secured after a time from the same fields. Few of the rubber plantations thus far started in various parts of the world, have yet reached the stage of yielding rubber, but the susceptibility of the trees to cultivation has been proved.

One successful experiment is that of General Feron, of Honduras, who has a small plantation of rubber trees about fifty miles inland from Puerto Cortez, grown from cuttings brought from Brazil twelve years ago. Senor Jose Mendonca, of Honduras, said recently to a representative of the Washington *Star*: "For two years—you know it takes about ten years for the rubber trees to mature—General Feron has been drawing from these trees the liquor from which the rubber is made. The quality of the rubber proves to be as good as any from the Brazilian province of Para. General Feron's little plantation of twenty acres is worth to him $800 a year. There are hundreds of thousands of acres in Honduras that will grow these trees, and there are fortunes in their development."

The interest in this subject in Mexico has increased until the government has entered into a contract with Ramiez Varta & Co., for the planting of 15,000,000 rubber trees in the State of Oaxaca, on the Pacific Coast. The government is to grant three cents per tree planted and to permit the free entrance of all needed machinery and appliances. This is the result of the making of a number of small experimental plantations in that State several years ago, which, it would seem, proved successful. The press of Ecuador is urging the government to offer inducements for the planting of rubber trees. Everywhere there is a tendency toward better governmental protection of rubber forests, indicating that their extinction is considered a possibility.

At Ceylon a Para rubber tree reached its eleventh year

in 1888, and a diameter of 17 inches at a yard above the ground. It was tapped three times during that year, yielding 28¾ ounces of the finest rubber, worth, at the prices then prevailing there, about $1.80.

We call attention to this subject as one of interest not only to the rubber trade but possibly to some American capitalist who may see the importance of being a pioneer in the business of supplying the world with cultivated rubber, whether grown in the United States or elsewhere on the continent.

The Rubber Shoe Market.

THE store-houses of the rubber boot and shoe companies, which, until late in the season, were full to overflowing, have been pretty well emptied. Jobbers availed themselves freely, just before the 1st of April, of the right to purchase all the goods that their contracts called for, prior to the going into effect of the new discounts. It was noted in Boston that the number of jobbers there was the greatest ever seen in that city at one time. The freedom with which goods were sold, however, signified but little, merely transferring the stocks from the manufacturers to the hands of the jobbers. Of heavy goods very few have gone into consumption, and large quantities will be carried over. Of light goods and boots there are comparatively few on hand, for the last two seasons have been remarkably favorable for their sale, and when orders for these goods come now they have to be made. While stock has not gone into consumption, chiefly on account of the open winter, manufacturers are relieved, and it will bring up the business of the season to a good average. Such is the position in which a majority of the companies found themselves at the period for the annual stock-taking and repairs, which usually comes with the month of April. The companies were all running on full time at the coming of the season for stock-taking, and the forwardings from Boston, during the first three months of the year, were 72,620 cases greater than for the same period for last year. There has been a growing demand for tennis shoes, especially, the Southwest having begun to take large quantities of them.

A Bit of Wisdom From Boston.

THE Boston *Budget*, assuming to speak authoritatively, says:

"The so-called 'rubber goods' of to-day are so largely made up of adulterants that the advance in the market for pure rubber should not affect them at all. It is said to be a fact that the cheaper grades of overshoes now made practically contain no new rubber at all, old shoes ground to shoddy, and held together by a modicum of rubber varnish, being used. But they have advanced in price just the same."

The absolute falsity and foolishness of the above statement are so apparent that it is hardly worth answering, yet, for the benefit of those who take whatever a newspaper says as gospel truth, we will say a word or two. To begin with, it is an actual fact that there never were before so many first-class, high-grade rubbers made as there are to-day. If it were true, as the *Budget* says, that so little rubber enters into a shoe that the high price of gum should not affect its price, why did one of the prominent rubber shoe men buy 1,000,000 pounds of fine Para the other day? Why didn't he depend upon a "modicum of rubber varnish" to hold the compound together? The gross ignorance of the Boston reporter crops out when he talks of *rubber varnish*. Not an ounce of rubber varnish is used in making rubber shoes.

Two things that the daily newspapers are continually harping upon are the Rubber Trust, and the poor quality of rubber foot-wear. Now the public pretty generally know, if the newspapers do not, that there never has been a rubber trust; and they are also learning rapidly, that if they buy from any reputable rubber manufacturer they get *rubber* goods. The name is always stamped on the shoe, and if people buy shoddy goods it is due either to their ignorance or penuriousness. Of course there are shoddy rubbers, and there are shoddy woolens, and filled silks; but does that prove that there are no honest woolen or silk goods?

Dangerous Advice to Rubber Users.

A GERMAN magazine recommends the dipping of vulcanized India rubber articles in a bath of paraffine heated to about 212° Fah. It is said that with the paraffine adhering, they are to be placed in a room at about the same temperature, stretched on wire work, and allowed to dry. After an hour about 5 per cent. of paraffine will have been absorbed. These goods, while not differing from others that have not been so treated as far as looks go, are said to resist in an effectual manner both light and atmospheric influence as well as acids. It is further stated that a varnish coat of paraffine is a good preservative for all vulcanized rubber goods to be carried in stock.

With all due respect to the German chemists who have published those statements, we would beg to differ most radically. We have known of many cases where the use of a little paraffine in India rubber was the means of its decay. When one remembers that paraffine mixed with unvulcanized rubber will cause it to melt at a low temperature, it should be proof positive that its solvent effect will be most damaging either on vulcanized or unvulcanized goods. We therefore hope that no one reading this article will try this experiment, which must prove most disastrous.

AMERICAN exports of rubber boots and shoes last year were larger than ever before, in spite of the mild temperature. The figures for various years of late appear thus:

1889	$127,684
1888	84,690
1887	75,475
1886	73,335
1885	89,095
1884	81,787

Very Different from a Trust.

REFERRING to an editorial in the last number of THE INDIA RUBBER WORLD the Springfield (Mass.) *Union* says: "According to the organ of the rubber trade, there is no rubber trust, but simply 'an agreement on the part of the majority of the rubber shoe manufacturers as to what prices shall be charged for their products so long as the advanced price of crude rubber continues.' This is a very different thing from a combination of capital or corporations in the hands of trustees who have control of the whole business, close factories at their pleasure, issue certificates and all that. The rubber people have done nothing more than other classes of manufacturers have done for years. They do not limit production or competition, nor attempt to crush out weak concerns, nor engineer corners. It is well for the public to make the proper distinction in these matters, and not give a perfectly legitimate raonadjustable infirstactin a bad name."

Fluctuations in Rubber Prices.

A CONSIDERATION of the market values of crude rubber for thirty-five years past shows this commodity to have been subject to great fluctuation. Fine Para rubber has been sold as low as 27 cents and as high as $1.15 per pound, in both instances being taken in quantity and at the market price. In April, 1854, it touched 90 cents, in December, 1857, it was 25 cents, and in May and October, 1882, the price was $1.15. These are the extremes. Until 1858 the price in Boston was usually below 50 cents, but in that year it reached 57 cents, about which figure it remained until the beginning of the Civil War. During the years of the war rubber was cheap, rarely rising to 50 cents for fine Para. In 1870 it touched 87, but for most of the next decade it ruled low. When, as just stated, the price touched $1.15, it was not due to natural causes. It was the time when Vianna, the notorious speculator, succeeded in getting a corner on rubber. When the bubble burst rubber went tumbling down until, in 1884, sales of fine Para were made as low as 48 cents per pound. Since that, however, rubber has ruled higher, and the average price of fine Para, during the decade between 1880 and 1890 was much higher than during any other period of ten years since the commodity has been on the market.

Rubber Moving Westward.

IT is interesting to note, says *Boots and Shoes*, how the rubber manufacturing business is moving westward. Originally most of the manufacturing was done not very far from New York City; now rubber belting mills have spread out until they are scattered all through the Middle and Western States. So far the efforts have been confined entirely to rubber clothing, horse-covers, belting and packing, the boot and shoe industry being located with Eastern mills, but it does not seem possible that the manufacture should be thus localized much longer. Probably the only reason it has been kept in the East so long is that the belting and clothing business has been profitable, while the boot and shoe business has been overdone, and profits either reduced or given away through the competition brought on by overproduction.

Obituary.

HOWARD MEYER, a son of the late Christopher Meyer, the wealthy rubber manufacturer, died recently at his home, No. 9 East Eighty-fourth Street, New York City. He was born thirty-four years ago in New Brunswick, N. J., and finished his education in the Sheffield Scientific School of Yale University. After being graduated from that institution he associated himself with the Meyer Rubber Company, and remained in the business until about three years ago, when his mind became affected, and he was cared for in several private asylums. Howard Meyer married about six years ago Miss Minnie Cole, who, with a a son, survives him. The burial was at New Brunswick.

Good Words From the West.

AN appreciative letter comes to us from a gentleman well known to the Western rubber trade, which we take pleasure in quoting from as follows:

GALENA, ILL., March 27, 1890.

EDITOR INDIA RUBBER WORLD:—I have just finished reading (every word "ads" and all) your March number of THE WORLD. It is sent me here from the store in Omaha. I am *much pleased* with it; have read each issue so far and see that the paper is getting better and better all the time. I am here for an indefinite time, trying to rest and regain health, which I have impaired in building up our flourishing business (The Omaha Rubber Company) in Omaha, Neb. While in New York I intended calling on you in person, to express the pride I take in your paper, but was taken sick and forced to come here. Our business is flourishing in the hands of J. Hurd Thompson, secretary and treasurer of the company. Very truly yours,

O. H. CURTIS, President Omaha Rubber Company.

WE are indebted to Messrs. H. O. Canfield, of the Canfield Rubber Co., Bridgeport; and John W. Gray, of the Hartford Rubber Co., Hartford, for a pleasant call on the 9th inst. These gentlemen met each other by appointment at the office of the INDIA RUBBER WORLD, and in so doing set an example which members of the trade everywhere should follow. We have pleasant offices centrally located, ample desk room, plenty of stationery and a cordial welcome for every member of the trade. Moreover, if we can't give you some information, you can certainly give us some every time you call.

WE are indebted to Messrs. Charles Lowenthal & Co. for the very interesting tabular statement of the exportations of India rubber from Brazil, published on another page of the INDIA RUBBER WORLD.

New Goods in the Market.

TO MANUFACTURERS AND PATENTEES:

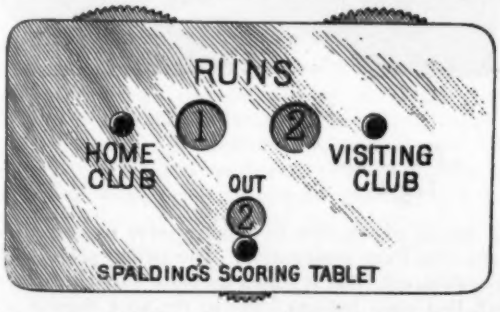
It is our aim to embody in this department descriptions and illustrations of all the latest novelties introduced in the market, to the end that jobbers, retailers and buyers of rubber goods generally may look here for information as to everything new that each month or season brings forth. Manufacturers and patentees are, therefore, most cordially invited to co-operate with us in making the department as complete and attractive as possible—the distinct understanding being that no charge whatsoever, either direct or indirect, will be made for these publications. Our reward will come through giving our readers valuable information; and that will be reward enough if manufacturers but give the information freely and in all cases at the earliest practicable moment.

In forwarding descriptions of new goods, be careful to write on one side of the paper only; be brief, but always write enough to give the buyer a clear idea of the article you offer; give your full address, plainly written; and in all cases send a small illustration or wood cut if you have one.

New Goods in the Market.

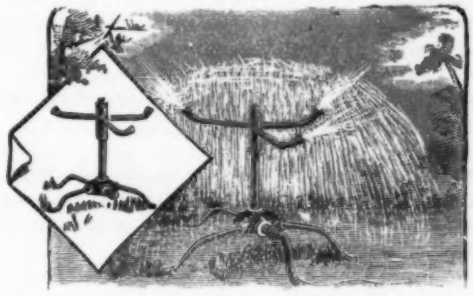
A RECENT brand of Cable Hose, and the latest put upon the market by the New York Belting & Packing Company, No. 15 Park Row, New York, is the "Herkimer" Multiple Red-Dot Cable Hose, which we illustrate here. It is what is called a jacket hose, and the advantages afforded by its use are clear waterway and no friction. The loose jacket is woven solid on the inside of the hose in finer threads, making an even inner cushion or soft bed for the rubber lining. These two plys are firmly united into one solid base, increasing the strength, making the lining longer lived, and forming a perfectly smooth waterway, thus overcoming the friction of the corrugated interior of other cotton hose. The outer plys or covers can be worn away without visibly affecting the inner fabric. This new hose is especially well adapted for fire service, being very strong, and can be readily recognized by the red dots across the surface—the patent Trade Mark of the manufacturers. Prices and sizes will be furnished upon application.

—This is a Celluloid Indicator for scorer, umpire or spectator. The illustration represents its exact size, and gives a good idea of its construction and mode of handling. It is held in the palm of the hand, and is easily operated by the thumb or finger. For keeping account of balls and strikes it is unequalled. In the same line of inventions for the base-ballist is the celluloid scoring tablet. This is so simple that the illustration tells the whole story of what it does. Made by A. G. Spalding & Bros., owners and patentees, New York.



—The Empire Elastic Bandage which is here illustrated has the following strong points: 1st, its porosity. It never causes itching, rash, or ulceration under the bandage. 2d, its elasticity, which will enable the surgeon or nurse to put it on at any required tension, and which will follow a swelling up or down, as the case may be, a feature unknown to any other bandage. 3d, its absorbent properties. 4th, its easy application to any part of the body, not being necessary to fold it over as with other bandages. 5th, its self-holding qualities. No bother with pins, needles and thread, or strings, so tiresome to surgeons, as simply tucking the end under the last fold insures its permanent stay until its removal for purpose of cleanliness. 6th, the only bandage that is superior to the elastic stocking for varicose veins. Manufactured by the Empire Elastic Bandage Co., Lockport, N. Y.

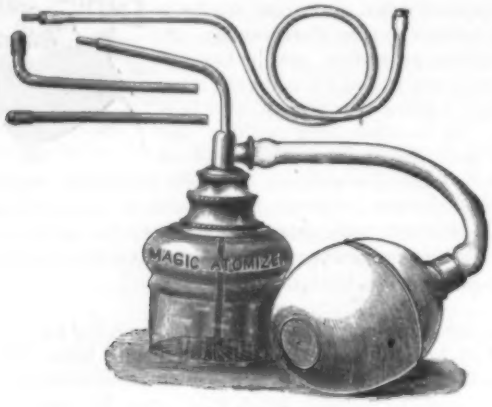
—At this season of the year, when the morning nap is disturbed by half formed visions of garden hose, lawns and the usual accompaniments of spring, it may do one substantial good to gaze upon the cut that heads this note. It represents E. Bruce Preston's Columbia Sprinkler. It is certainly cheap and durable, and while it sets close to the ground it is capable of throwing water quite a distance, and is not liable to tip over. Stephen Ballard & Co., of New York, are the Eastern agents for this sprinkler.



—The article here illustrated, the Anti-Dust Respirator, is not made of rubber, but is designed for use in rubber factories, or in any place where there is dust. For the grinding room, to keep the flying whiting, lampblack, and litharge, from the lungs of the workmen; or in the departments where goods are bedded in French Talc, this respirator is especially valuable. It is adjusted so as to fit so closely as to exclude all dust, and yet the air, strained by the cotton flannel diaphragm, comes in with perfect freedom. It is manufactured by Codman & Shurtleff, No. 13 Tremont Street, Boston.

—The Davol Rubber Company, of Providence, R. I., are the makers of the Magic Atomizer No. 5 which has the following strong points: A continuous spray and straight and bent adjustable metal pipes. It has also a flexible rubber tube that will give a continuous atomized spray in any direction required. This atomizer is beautifully finished, all the parts being made at the Davol factory with the exception of the glass bottle. Another form of atomizer made by the Davol Rubber Company, and a very popular one, is the Hard Rubber Magic No.

30. In this, on all of the pipes, the fittings are of hard rubber, and consist of a long straight tube for the throat and general application, a tube with a downward curve for the Larynx, and a backward spray for Posterior Nares. The tips are 20, made



as to screw on, and to be in position when the end of the screw thread is reached. The whole apparatus is so simple that any one could take it to pieces, cleanse it and put it together again without the possibility of a mistake. The finish of the hard and soft rubber parts cannot be excelled.

—The Woonsocket Rubber Works at Millville, Mass., have shut down for repairs. Patrick J. Conley, who has for a long time been superintendent of the works, has been promoted and is now made the general manager.

—A comb of polished hard rubber, black as the blackest jet, with unique and beautiful ornamentation in gold, is what the Harburg India Rubber Comb Co. are now selling from their store at 335 Broadway. The gold ornamentation is done by Japanese artists in Japan, where the combs are sent from Germany. They return to Germany after this ornamentation, and are then sent to this country, where they are finding a ready sale.

—One of the nicest lines of maroon goods ever put on the market are being produced by the Tyer Rubber Co., of Andover, Mass. A good sample of this kind of work is their No. 5 Syringe, which is pictured here. In this article both bulb and

tubing are of maroon rubber, while the pipes and fittings are of handsomely finished hard rubber. This syringe, by the way, is the most complete of any we have seen, and material and finish are first-class.

—It is the rubber-covered wheels, acting as friction drivers on the wheel of the brush which make the new Bissell Carpet

Sweeper a success. To be sure, the furniture fender is of rubber but it is the rubber tired wheels that earned for this tidy machine mention in our columns. Made by the Bissell Carpet Sweeper Company, Grand Rapids, Mich.

—The hat stores of Boston and vicinity have recently been decorated with a novelty in the shape of a brush that seems to have considerable merit. It is a wire brush on a rubber setting. For brushing a silk hat it is quite a success, and for renovating fabrics that have worn glossy, it is just the thing. Made by the Fabric Renovating Brush Co., Boston, Mass.

—The new Davidson Dental Dam is a gum that will bear a deal of praise. It is made of the finest Para, and is said to be strong, tough, uniform in quality, and very durable. It was at the request of the users of the gum that the manufacturers devised the handsome boxes in which it is packed. These boxes are of tin, handsomely ornamented, and no doubt are effective in keeping the gum fresh. The rubber is spread in two weights, light and medium. Manufactured by the Davidson Rubber Company, Boston.

—Ventilated rubber garments have become popular, a ventilated rubber boot is worn by many, and now we illustrate a ventilated rubber shoe. The device is exceedingly simple, consisting of three or more channels moulded in the upper, which

Fig 1

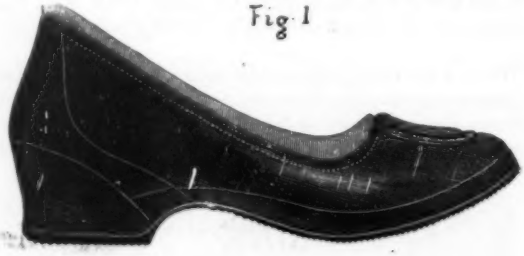


Fig 2

by the motion of the foot in walking, serve to keep the foot cool and free from perspiration. The strong points claimed for this rubber are: that it allows the blood to circulate through the foot, that while holding firmly to the boot there is no apparent pressure; and that they allow the air to enter between the rubber and the leather. The shoes are not as yet put upon the market, and the inventor would like to correspond with rubber manufacturers with a view to their introduction. Address Ventilating Shoe, INDIA RUBBER WORLD office.

—The American Tate is a racket which, although new, has already found a place in the admiration of expert tennis-players. It is modelled after the famous English Tate and is said really to be far ahead of its British rival. Its balance, strength and finish are said to be perfect. Mr. Horace Partridge who acknowledges himself to be a tennis crank, has put in a deal of time in perfecting this racket. In the matter of stringing he is abnormally particular, hiring experts and insisting that perfect work be done. This is strung with the best English gut, in red and white, and so tightly that an ordinary frame would be crushed by the simple tension of the strings. The weights of the rackets are 12½ to 16 ounces, the face measurement being 8½ by 11 inches. Quite a popular attachment is the soft rubber handle which is nothing less than a thin tube that is slipped on over the wooden handle. This enables the hand to grasp the racket without danger of slipping and is much more popular than the cork handle. Now if only the leather butt of the racket were replaced by a moulded cup of rubber the American rackets could not be improved. Made by Horace Partridge & Co., Boston.

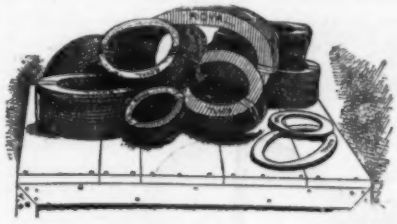
—Signature mats, in which a man's name is reproduced in his own handwriting are a popular fad among the business houses just now. One of particularly artistic proportions and

excellent finish is here illustrated, the work, design and all being done by the New Jersey Car Spring and Rubber Co., of Jersey City, N. J. If the reader will but enlarge this tiny picture until the mat signature is six feet long and its surroundings in proportion, a good idea of its size may be obtained.

—The World's Air Mattresses and Cushions are goods that will at once commend themselves to the popular judgment. The air cushion has long been known but the trouble has been to confine the air so that it could not be driven into any single part of it, leaving another portion empty. By an ingenious process of "staying," the inner cushion is so held that the air must remain an elastic, buoyant mass, evenly distributed throughout the whole. The mattress or cushion, is made of heavy cloth coated with a gum compound that is impervious to air or moisture. Over this is a covering of felt and outside of this is the ordinary mattress cover. The strong points of this mattress as against the ordinary article filled with moss or hair are its comfort, cleanliness, lightness and durability. The cut of the mattress floating in mid-ocean with a half-score of persons clinging to it, may seem an exaggeration until one tries to sink one of the small chair cushions that are filled with air. Then it is that one appreciates the lightness of this sort of cushion and its availability as a life preserver. For this reason many boats and yachts are fitted with these cushions.

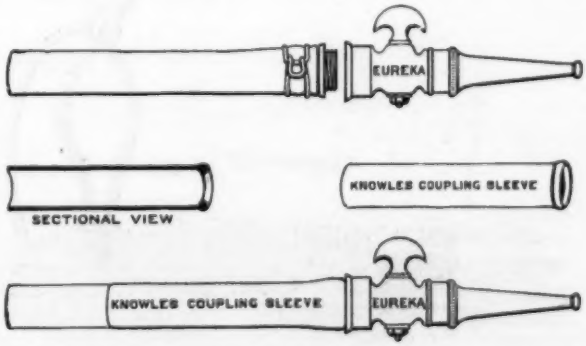
—Right on this line is a beautiful little silk head rest which many travellers carry, which when inflated and laid in the angle formed by the back of the seat and the car-window averts many a stiff neck. The air mattress and bolster are found to be of great service in folding-beds because of the little room they take up. Hassocks, cushions, rest of all sorts, camping out mattresses, canoe cushions, carriage cushions and a host of goods are made by the company owning the patents for this work. The World's Air Mattress and Cushion Company, No. 93½ Summer Street, Boston.

—Among the many new and praiseworthy devices that may be found in the mechanical department of the Metropolitan



Rubber Company, Nos. 649 and 651 Broadway, New York, are the Pure Moulded "Royal" Man-Hole and Hand-Hole Gaskets, an illustration of which is herewith presented. Through careful manipulation these goods are made soft and pliable, such conditions causing ready adjustment to rough or uneven plates, thereby attaining, in every instance, a most desirable result—a perfectly tight joint. It is believed they will fully sustain the reputation acquired through the flattering utterances of the several boiler inspectors to whose special notice they have been brought. They will not harden, thus rendering liability "to blow out" beyond question—an important fact which should aid materially in placing the "Royal" in the front rank of all gaskets. Mr. George M. Ayres will be pleased to more fully explain to all purchasers of mechanical goods the merits of this and many other newly designed articles to be found in the department of which he is manager, than we can in this brief notice or limited space.

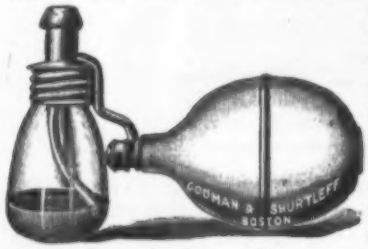
—Garden hose has a provoking way of leaking round the coupling, no matter how tightly it may be set up. The "KNOWLES COUPLING SLEEVE," illustrated below, entirely does away with this trouble. The sleeve is merely an elastic tube of pure rubber, with an enlargement at one end that serves as a washer between



the coupling and the pipe, and effectually prevents any leaking at the coupling. The sleeve covers the hose strap and forms a smooth surface for the hand to hold by. The price is only ten cents each. Put up in gross boxes. C. S. Knowles, 7 Arch Street, Boston, Mass.

—We thought when they began to put water-proofs on pug dogs that the limit had been reached, but we were in error. A new line of clothing has sprung up and it is popular, too. It is nothing more or less than the fitting of account books with gossamer covers. These books of course are for bakers, butchers, expressmen and others who are engaged in out-of-door work. The cover is of genuine gossamer cloth, some of it in the latest stripes and it is an idea that is taking immensely. The books are made by the Thorp & Adams Manufacturing Company, No. 14 Milk Street, Boston.

—The spraying of vaseline and many other liquids into the throat and nasal passages, has proved so beneficial that the vaseline atomizer in its different forms has been added to the list of staple goods. The one which we illustrate has been successfully used to spray various combinations of vaseline with camphor, carbolic acid, iodoform, hamamelis, zinc oxide, and other substances. The advantages claimed for it over all others are that it is not easily broken, and is easily filled and easily cleaned. It requires but small expense to replace the vial if broken, and having a flat base, it can be placed on the table after using, without danger of spilling the warm fluid. Being handsomely nickelplated, it has a pleasing appearance. Manufactured by Codman & Shurtleff, No. 13 Tremont Street, Boston.



—An exceedingly simple and effective nozzle-holder which is known as the "Bay State" is here illustrated. It has been found to be a great convenience in taking care of a lawn, especially if one has but a few minutes night and morning for that work. The nozzle may be pointed in any direction and by a simple ratchet adjustment, the stream thrown to any required elevation. Manufactured by the Boston Woven Hose Company, No. 226 Devonshire Street, Boston.

The Rubber in Milk-weed.

IT has long been known that many plants as well as trees contain India rubber. The common asclepias, which grows in all parts of the United States and Canada, and is known as milk-weed, contains a large portion of caoutchouc. A number of years ago a manufactory was started in Canada with the idea of utilizing this plant for waterproofing purposes. But for some reason the affair was an absolute failure. It is interesting to know that the experiments conducted some years ago in Germany upon similar plants, are again receiving the attention of chemists there, and without doubt before a great while some practical way of utilizing the caoutchouc in herbs of this class will be discovered. The manner of extracting the rubber principle from these plants as practised in Germany was first a drying of the herb, which was afterwards carefully pulverized by machinery. In removing the fibre from the mass the whole was placed in a vat containing benzine, and was then thoroughly agitated for some time. The solvent was run off, and in it was contained the India rubber and other substances that naturally come from the herbs. The benzine was then evaporated and the residuum, which would contain a certain amount of coloring matter beside wax and grease, was treated with alcohol or spirits of wine containing potash. This would dissolve and carry away all except the India rubber. After the solution cooled the wax substances become easily separable. Of course, it is easy to remove the dye contained in the solution by putting in a precipitant. It may be that this manner of utilizing the rubber plants will never be of the least practical use on account of the trouble arising from the slight amount of India rubber to be found in any of the plants, and the great amount of work necessary to produce it. But perhaps some means may be discovered whereby the latter difficulties may be overcome.

Rats and Rattlesnakes in Rubber.

A RUBBER MAN in Chicago thus made use of some of his goods during a horse-car ride, says the Chicago *Herald*. The car in which he rode was old and rickety, which had been hauled out of the barn to do duty as a tripper during the holiday rush, and it was filled with musty old hay. An idea struck the young man just as the odor struck his nostrils. Reaching down into his overcoat pocket he pulled out a natural looking rubber rat and dropped it in the straw. Then he went outside and complained of the condition of the car to the conductor. "Such an old rattle-trap ought to be split up into kindling wood," he growled. "It's full of rats."

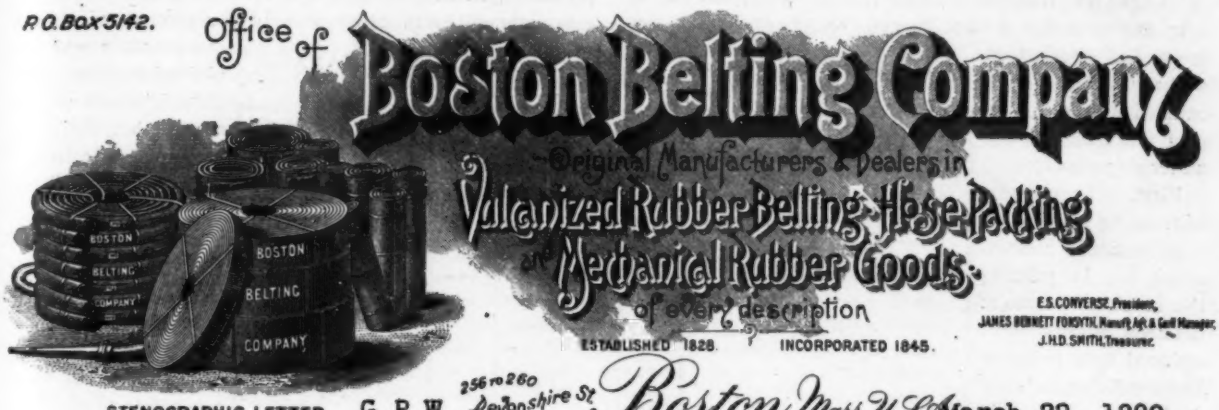
The conductor eyed him sharply, as if wondering if he was bound for the Washingtonian Home. "There are no rats in this car," he said. "Well," said the other, "if you don't think so go inside and see." Now the conductor was sure he had a patient, and he thought best to humor him, so he went inside. There, sure enough, was a rat. "Keep still a minute," the conductor whispered, as he cautiously reached under the seat and got a broom. Then he raised it aloft and brought it down on the rubber rat. The whistle in the toy gave a squeak and the conductor proceeded to baste the life out of the bogus rodent.

When he had tired himself out the rubber man picked up the rat and put it back in his pocket. Was the conductor mad? Well! "You think yer smart, don't you?" he muttered, savagely. "Only a joke, old man," was the reply, with a reaching out of the hand to shake. As the conductor made a motion to take it the joker uncoiled the rubber snake which he held, and it shot out toward the bell-punch man. He nearly fell off of the car, and he kept as far away as possible during the rest of the trip.

Looking Backward.

NOWADAYS when so much is said for and against rubber shoes, and when such enormous factories are turning them out by the thousands of pairs daily, it is interesting to look back a little at the beginning of this industry. It is to be traced directly to the efforts of Charles Goodyear, for the rubber shoe was one of the very first things that he made after having perfected the vulcanization of rubber. Of course in those early days the population of the United States was only about one-third of what it is now, and the people were much poorer, so that the market was much less valuable than it is to-day. At the same time they were ready for the rubber shoe and welcomed it heartily. When the old Hayward company started their first mill in Colchester, Conn., it was all of five years before they were really successful in making the plant pay. They were, however, substantial, being backed up by Governor Buckingham and other such men, and in due course of time were able to make shoes that were considered very beautiful and that certainly were exceedingly durable.

These shoes were sold not only in the United States, but were also introduced into Europe. In England Thomas Hancock had patented every application of sulphur to rubber that he could imagine, and among others its use in India rubber foot wear. When Lorenzo Blackstone, afterwards the wealthy cotton manufacturer of Norwich, Conn., became, through accident, the agent for the Hayward company in England, the Hancock people at once stopped him and it was not until he obtained a license from them that he could go on. When once the Hayward company, working under the Goodyear license, got well going, they achieved a success which was something startling. In one of their prosperous years they paid a dividend of 155 per cent. to the stockholders, besides paying 55 per cent. into the company's sinking fund. For many years under the leadership of Captain Felton they were exceedingly prosperous and made a great deal of money building up the large plant at Colchester, which had a capacity of about 10,000 pairs of boots and shoes a day, and also having another factory seven miles from that town at Bozrahville, Conn., where the washing, mixing, and preparatory work was done. Of course as soon as the license of the Hayward company had expired many others sprang into existence and far outstripped these original manufacturers of boots and shoes. Although these companies had watched with envious eyes the progress of the



India Rubber Publishing Co.,

114 Tribune Building, New York.

Gentlemen:-

We are pleased to inform yon that we have more inquiries from our "ad" in your paper, than from any other one publication that we advertise in. Wishing you success, we are

Yours respectfully,

BOSTON BELTING CO.

James Bennett Forsyth.

General Manager.

Hayward company it was with considerable sympathy that they saw the company go to pieces in 1885.

Looking at the business to-day with factories making five, ten, twenty, and even forty thousand pair of rubber boots and shoes a day, one wonders if Goodyear, with all his exalted visions, ever saw any such business in this line of rubber foot wear, and the query must also arise whether it ever dawned upon him that some time in the future the United States alone would manufacture nearly $300,000,000 worth of rubber goods in a single year.

NATHANIEL C. MITCHELL, of Philadelphia, has secured letters patent (Serial No. 332,455) for a new method of production of restored or devulcanized rubber. The new features claimed under his patent follow:

First. The process of treating restored or devulcanized rubber, consisting in passing the stock while moist between rollers until reduced to a pulverulent condition, and then drying the powder and at the same time agitating or stirring it to prevent adhesion of the separate particles.

Second. The process of treating rubber reclaimed from waste rubber goods, consisting in devulcanizing the rubber by the action of live steam, then while the rubber is yet moist rolling it until reduced to a powder, and finally drying the powder and at the same time agitating or keeping it in motion to preserve the powderly condition.

Third. The restored rubber, the same being a coarse-grained powder in a devulcanized and desulphurized state of a deep black color and free from impurities such as fibre and the like.

IT is said that in Belgium, when a consul is appointed to some foreign station, he is sent around to the chief manufacturing centres to talk to business men before he proceeds to the scene of his official duties. He thus gets to know what information will be of service to send home, and also takes out a list of firms wishing to trade in his district, and he is expected to facilitate operations. Why cannot our consuls be made more practically useful in similar ways?

EXPORTS OF INDIA RUBBER FROM PARÁ AND MANÁOS DURING THE YEAR 1889.

EXPORTERS.	PARÁ.		MANÁOS.		TOTAL EXPORTED.	Stock on 31 Dec., 1889.	GRAND TOTAL.
	TO EUROPE.	TO UNITED STATES.	TO EUROPE.	TO UNITED STATES.			
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
E. SCHRAMM & CO., and their Successors PUSINELLI, PRUSSE & CO. Representing: CHS. LOEWENTHAL & CO. New York and Boston. HEILBUT, SYMONS & CO. London and Liverpool.	3,040,657	2,700,911	1,702,974	470,947	8,074,489	800,000	8,874,289
LA ROCQUE, DA COSTA & CO.	1,035,133	4,104,844	——	——	6,110,979	246,400	6,366,279
COMPANHIA MERCANTIL DO PARÁ.	1,200,577	2,320,360	——	——	3,520,962	320,000	3,840,962
ROBINSON & NORTON,	53,264	2,011,094	——	——	2,064,348	57,000	2,121,348
SINGLEHURST, BROCKLEHURST & CO.	283,280	865,833	1,301,864	337,163	2,090,340	223,400	2,313,740
R. F. SEARS & CO.	95,681	2,236,237	——	——	2,331,918	70,400	2,402,318
J. H. ANDRESEN & CO.	——	——	1,022,989	272,514	1,295,507	336,000	1,631,507
W. HRAMBER & CO.	609,562	663,863	——	——	1,273,425	——	1,273,425
J. VIANNA & CO.	348,680	355,170	——	——	703,850	——	703,850
D. CROUAN & CO.	642,985	——	——	——	642,985	22,000	664,985
RUD. ZIETZ,	598,357	——	——	——	598,357	24,300	622,657
G. POTEY, RABERT & CO.	——	——	261,864	169,216	430,800	61,000	491,800
B. A. ANTUNES & CO.	——	——	148,123	15,576	163,699	8,800	172,499
FREITAS, SOBRINHO & CO.	——	——	102,253	——	102,253	30,400	132,653
KAHN, POLACK & CO.	——	——	88,121	3,000	92,030	44,000	136,030
A. BERNEAUD & CO.	——	——	32,621	49,414	82,035	33,000	115,035
LUIZ SCHILL & SOBRINHO,	——	——	101,910	——	101,910	11,000	112,910
J. B. DA SILVA, PEREIRA & CO.	——	——	39,131	18,213	57,364	4,440	61,784
SUNDRY SMALL SHIPPERS,	916,061	1,018,319	310,467	119,354	2,464,231	——	2,464,231
STOCK IN FIRST HANDS,	——	——	——	——	——	952,600	952,600
FROM SERPA,	——	——	55,510	5,636	61,146	4,900	66,046
	9,764,865	16,373,064	5,178,003	1,470,943	34,050,894	2,436,440	36,387,294

	To Europe. lbs.	To United States. lbs.	Total Exported. lbs.	Stock on the 31 Dec. lbs.
Exports, 1889,	14,946,888	20,004,006	34,950,894	2,868,800
" 1888,	13,477,175	19,547,591	33,024,766	2,585,000
" 1887,	12,227,408	18,761,296	30,988,704	2,206,600
" 1886,	11,079,730	17,534,172	28,613,902	2,309,782
" 1885,	12,630,988	16,408,066	29,039,054	1,863,400
" 1884,	12,122,392	11,959,772	24,082,164	2,708,200

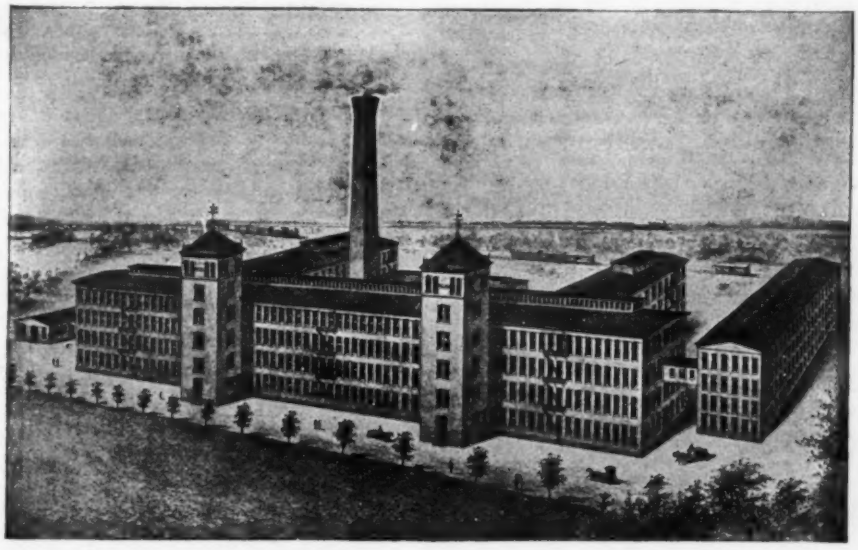
A Visit to the Para Rubber Works.

ONE of the features of the recent excursion tendered the delegates to the International American Conference, which is just closing its sessions in Washington, was the visit to South Framingham, Mass., the seat of important rubber interests. It especially delighted the delegates from Brazil, from which Para rubber, the best in the world, is imported. The visitors were escorted through the offices and works of the Para Rubber Company by the president, A. L. Coolidge, and others connected with the establishment, and every step in the process of rubber manufacture was explained to them. The establishment is noticed at length in the handsome souvenir edition which *Frank Leslie's Illustrated Newspaper* devoted to the excursion of the Spanish Americans, printed in Spanish and English. Prominent in the illustrations are views of the visit to the Para factory, showing the arrival of the train with the delegates, the reception tendered by the citizens, the Para Company's buildings, and also the model shoe factory of Houghton, Coolidge & Co., at Ashland, Mass., of which A. L. Coolidge is also president.

There is more than five hundred thousand dollars worth of machinery in the Para company's works, run by a great one-thousand horse-power engine, besides an electric light plant of twenty-two horse-power, with nine hundred incandescent lights. Twelve hundred people are employed. There are used in one year 1,472,458 yards of cloth, while of chemicals and rubber the quantity used is 3,779,655 pounds. The operations of the factory are confined mainly to to the manufacture of boots and shoes, of which each day's production is 17,000 pairs. An experienced maker can turn out twenty-four to fifty pairs of shoes per day. Nine acres of ground are covered by the works. A banquet at the Parker House, in Boston, completed the day's enjoyment. The cover of *Frank Leslie's* has the flags of all the American nations in colors grouped in an artistic design.

The New Mill at Woonsocket.

ON a twenty-acre plot of ground fronting the Blackstone River, stands the new "Alice Mill" of the Woonsocket Rubber Company. A mill that is to turn out 30,000 pairs of shoes daily must necessarily be a large one—how large mere figures do not give an adequate idea. One must stand at one end of the vast grinding room and look down the long apartment, 420 feet, to the further end, to realize what a distance it is. Of the four floors shown in the engraving, the first is to be the grinding room, the second the cutting room, the third the packing room, and the fourth the making-up room. The first three apartments have two lines of oak posts running the entire length, but the making-up room, where will be more than a thousand girls, is light, free from posts, and certainly as magnificent a work-room as could be desired. Four elevators will be used to carry the stock up from the grinding and calender room to the cutting room, and from there to the top floor to be made up. On this upper floor, in the wings, are the heaters, so that the goods will need but little handling between the making-up and vulcanizing.



The building on the extreme right is the store-house, the further end of it being close to the railroad track. The box shop is at the left, close up to the track, as is also the great store-house for gums and supplies. In the rear and between the wings are the coal pockets, their walls built of substantial granite. All these last-named buildings are so close to the track that box shooks, supplies, cloth, and coal may be unloaded into their respective store-houses, while goods that are to be sent away are loaded into the cars right at the end of the store-house for finished goods.

In the great engine room are twin Corliss engines of 750 horse power each, which are to be fed by a battery of 10 Allen boilers. The light will be furnished by five dynamos, while the great rooms will be heated by currents of hot air. The whole work has been under the personal supervision of Mr. Banigan's right-hand man in mill work, Mr. P. J. Conley, the superintendent of the Millville plant.

The dimensions of the buildings are: Main building, 420×67; wings, each 137×58; towers, 31×31; engine room, 45×50; boiler room, 136×50. The whole factory, probably, will be in working condition before the summer is gone.

Rubber for Cars and Ships. What Next?

SALT LAKE CITY, Utah, March 25, 1890.

EDITOR INDIA RUBBER WORLD: A late number of your paper has fallen into my hands, in which I find many interesting items. The rubber trade has long been of interest to me, I have been a member of the dental profession for twenty years, and wherever rubber came into use in the profession it has always led me to reflect on the many uses to which it can be applied. It is, perhaps, but natural that these thoughts should be leaders, as they have been in my case, to the vision of a possible future. For those visions pictured to my mind railroad cars and sea-going craft impervious to the wrath of waves or to wreckage. Think of railroad cars manufactured of rubber or rubber fabric, so pliable, so resisting, so tough, yet so yielding, that they might bound down an embankment fifty feet among rocks or timber and land comparatively unharmed. Crush them? No! Let one fall on another, both full of passengers, and they would bound like two rubber balls. Even should this sudden shock knock the breath out of some passenger, never to return, it would be a great improvement over being mangled by dozens in a pile of kindling wood and that on fire, leaving nothing of humanity to distinguish one from another.

Nor would it be a lesser boon "to those who go down to the sea in ships," that the vessels should be made of an elastic substance, which would resist the action of waves, and on striking rocks might bound away, instead of being crushed. But I anticipate being met with the question, Where are you going to get all this rubber? Let somebody else answer it. Suffice it to say, every new idea has been confronted with objections. If there had ever been such a thing suggested as rubber boats, skiffs or yawls, I should like to know it. Dr. J. L. ROBERTS.

SAYS the editor of *Modern Light and Heat*: "THE INDIA RUBBER WORLD is the appropriate title of a new journal published in New York City. The journal is devoted to the application and development of caoutchouc, gutta percha, and allied industries. The paper is exceedingly well got up in every way—good paper, clear type, and its reading matter is of exceeding interest. Our contemporary has got an entire field all to itself, and we predict for it certain success."

Trade Notes.

THE rubber manufacturers throughout New England are well acquainted with Mr. L. N. Johnson, who for eleven years traveled for the Eckstein White Lead Company. He was accounted an exceptionally fine litharge salesman, and disposed of quantities of the Eckstein goods. It will be of interest to Mr. Johnson's many friends to know that he has been elected vice-president of the James H. Prince Paint Company, of Boston, and has already entered upon his duties at their Portland Street office. Mr. Prince, who gives his name to the new company, will be recognized as the former president of the Eckstein Company and the owner of the valuable Monitor Oil Stove patents. He is known as a man of remarkable business capacity and of equally remarkable probity. With the push and ability that the new concern has corralled, there can be no doubt of its success.

—Mr. A. N. Wheeler, of Chardon Street, Boston, who attends to the wants of the gossamer manufacturers in most gratifying fashion, has just shipped a new pattern striping-knife to the Chicago Rubber Clothing Company, at Racine, Wis. Mr. Wheeler is more and more attending to the die, mould and special machine work of the rubber manufacturers and has the reputation of doing first-class work.

—Mr. E. F. Bickford, Superintendent of the Boston Rubber Shoe Company, has been South on the vacation that he always allows himself at this time of year.

—Now that the tennis season is about to open the lovers of that fascinating sport may expect to see Mr. Horace Partridge in the thick of the fun. He is a genuine enthusiast and is an authority on balls, racquets and nice points in the game.

—The Stoughton Rubber Company are putting in new machinery that will enable them to largely increase their output of goods.

—The Boston Belting Company have been running for two months past on garden hose, and are even now behind on their orders. With their capacity this means an immense quantity of goods.

—Mr. Frank Hall of Boston, is back from Florida, looking as jolly and hearty as ever.

—Mr. Luther Martin, of the firm of L. Martin & Co., the millionaire lampblack manufacturers of Philadelphia, is a prominent member of the Philadelphia Art Club, while both brothers, Luther and Robert W., are members of the Philadelphia Historical Society.

—Mr. C. F. Wood, who, a number of years ago, was associated with C. M. Clapp, is back in Boston at the old stand.

—A singularly attractive advertising device has recently been brought out by the New Jersey Car Spring and Rubber Co., of Jersey City. It is a tiny stairway of wood, on each step of which is a little rubber stair tread. The patterns vary for each step and are among the choicest that the company have produced. Placed on the showcase in any rubber store, this toy tells its story very eloquently and no do doubt will solicit many orders.

—Much of the discomfort of rubber shoes would be avoided if the wearers were more discriminating, says the *Shoe and Leather Reporter*. They are of inestimable value in wet weather, but should be removed the instant that the pavements become dry, because, being water-proof, they obstruct the natural exhalations of the skin. Wet feet resulting from confined perspiration are often more injurious than an unprotected exposure to the elements. Rubbers, like umbrellas, should be used transiently.

—The Rubber pavement invented by Herr Busse-Hannouer, mentioned in the last INDIA RUBBER WORLD as having been used successfully in Germany, consists of eighty-five per cent. of ground stone and fifteen per cent. of a rubber mass, which after a special treatment is mixed with the stone powder. This pavement is entirely even, and, when applied to the street on top of a layer of concrete, looks like asphalt, although not so smooth.

—Mr. Joseph Banigan, President of the Woonsocket Rubber Company, made during the past month a pleasure trip to the West Indies.

—The Boston Rubber Shoe Company has issued a new price-list on which discounts are required at thirty-eight and six per cent., and thirty-eight, six and ten per cent. off. This is a very convenient thing for retailers. The company will mail it to any dealer sending his address.

—The Woonsocket Rubber Company consumes every week about 70,000 pounds of Para rubber, two-thirds of it fine grade. It had to pay upon its last order an export duty of $40,000 to the government of Brazil.

—Mr. E. H. Cutter, selling agent in Boston, of the Woonsocket Rubber Company, who has been indisposed of late has gone for a two months' sojourn in the south of France, for the benefit of his health. He intends also to visit Italy and other countries.

—It is estimated that there are more than 120 rubber manufacturers in the United States, employing 15,000 hands and producing annually 280,000 tons of goods valued at $260,000,000.

—The main gear for the "Alice," the new rubber mill of the Woonsocket Company, which has just started, weighs eight tons.

—Mr. E. S. Converse, President of the Boston Rubber Shoe Company, has given several cases of rubber boots and shoes to the Chief of Police, of Malden, Mass., for distribution among the poor people.

—In the finely dressed window of the Stoughton Rubber Company, in Boston, is a curio that is attracting a deal of attention. It is nothing less than the head of a South American Indian chief. During his life this chief was no doubt a big brawny man, and perhaps as savages go, an intellectual warrior; yet his head as it now hangs in the rubber store window is no larger than an ordinary orange. Five or six centuries ago it was the custom of the South American Indians, especially those who lived near the headwaters of the Amazon, to decapitate those slain in battle. The heads thus secured they wished to carry around as trophies, so they invented a process of embalming, which embraced the removal of all the bony parts of the head, and the shrinking of the fleshy parts that were left. So carefully and artistically was this shrinking done that the exact proportions of the whole head were preserved, and they actually had it in miniature. When the process was finished the head was so small and light that it could easily be attached to the victor's girdle and worn with a half-dozen others, provided they could be secured. This head is the property of George A. Alden, who received it from his representative in Para. It is valued at $5,000, and is to be deposited in the Museum of Fine Arts, in Boston.

—Mr. G. R. Allen, of the Brookhaven Rubber Co., has been quite ill for two weeks past, but is now up again and able to make his weekly visits to New York, as well as to keep things moving at Setauket.

—At the factory of the Davidson Rubber Company at Somerville, Mass., is a huge engine that runs with a smoothness of motion that is delightful. Speaking of it President Lockwood said: "We think it is partly because we selected one of the best makes—the Brown of Fitchburg—and partly because of the good care we give it. Each year we shut down for a week, and whether the engine needs it or not, we take it all apart and have it carefully cleaned and polished. We find that our big machine appreciates it, for it has never yet given us a bit of trouble."

—Within the past ten years fortunes have been spent in the effort to find some substitute for hard rubber in fine dental and surgical work. It is gratifying to the rubber men to know that all experiments in this line have ended in failure. The dental plate, the syringe, the pessary and the truss, are still preferably of hard rubber, and no substitute or compound can bring an equal amount of durability, safety, efficiency and cleanliness. There are, of course, inventors who to day clamor for recognition, claiming that they have found the long-expected substitute, but thus far their goods are not successes.

—The Philadelphia *Times* of March 13th contained an interesting article on the Philadelphia station of the Edison Electric Light Company, the largest single electric light station in the world, together with views of the engine room, dynamo room and boiler room. The boilers, located on the fourth floor, will have an aggregate capacity of 5000 horse power. The celebrated Root Water Tube Safety Boiler is used. One thousand horse power have already been installed, and a second installation of 1000 horse power is now being made. The Abendroth & Root Manufacturing Company of New York, are the sole manufacturers of the Root boiler.

—Capt. Eugene Griffin, Manager of the Thomson-Houston Company, says that more than 30 per cent. of the street car roads are now using electricity as a motive power, or are preparing to do so.

—The provisional government of Brazil has made a loan of $3,000,000 to the State of Para, to assist in the development of trade and agriculture there. The late advance in the price of rubber has led to a much better feeling in that State.

—Workmen have begun rebuilding the Pacific Rubber Works of Paterson, N. J., which were destroyed by fire a few weeks ago. One building will be 110x25 feet, and the other, the stretching room, will be 50x36 feet. Both structures will be of brick, two stories high. Improved machinery will be put in, and the works, when ready to go into operation, will give employment to over 250 hands.

—It perhaps is not known everywhere that J. Francis Hayward, who has rubber stores pretty much all over New England, is a nephew of Nathaniel Hayward, the joint inventor with Goodyear of sulphur vulcanization for rubber.

—Mr. Edw. J. McCormick is back from his two months' trip among the buyers of stamp and dental rubber, and reports business good and the Imperial Rubber Co. flourishing.

—It seems that the rubber-tipped arrow is proving to be a very popular toy abroad. Only the other day two hundred gross were shipped to England.

—A new company in Chicago, so we are informed, have been trying to get hold of the plant of the Brown Rubber Co. in Providence. Their plan is to put a new line of druggists sundries on the market. It is probable, however, that the place will be devoted to the manufacture of insulated wire.

—A neat little blotter, that is easily slipped into an envelope, somehow finds its way to many a desk all over the country, and puts in a good word for the Tyrian Syringes, the Tyrian Atomizers, or some other goods with that popular name. The Tyer Rubber Co. of Andover are the senders, and are fast making Tyrian a household word.

—The old Brown & Co. plant of Providence, R. I., of late known under the corporation name of the Goodyear Boot and Shoe Company, has been purchased by a firm which intends manufacturing rubber coating for electric wires. This disposes of one of the small companies which will not hereafter be a competing element in the boot and shoe trade. It is said that Boston and Providence people have put $50,000 capital into the new concern.

—The late Dr. B. F. Goodrich, the founder of the Akron Rubber Works, was a man of singular acuteness of perception. It seemed as if every sense, sight, hearing, and even the sense of smell, were always keenly on the alert. The quickness with which he would decide upon the quality of a piece of rubber by this means was remarkable. This acuteness stood him in good stead upon one occasion. He was returning home late at night, and had entered the house quietly, not wishing to wake his children, when he smelt diphtheria. The prompt action that followed averted a serious illness.

—It happened that a young man well up in a certain rubber mill, was foolish enough to endorse a note for an intimate friend. When the note came due he had to pay it, and as the amount was large, it pretty nearly "strapped" him. By some means the president of his company learned of it, and as the boy was quite a favorite, he called him into the office and said: "My son, don't have *friends*—that is, don't have any friends in a financial way except me. Nine out of ten will stick you if you do. Now take this bit of paper and remember my advice." The bit of paper was a check covering the entire amount.

—Somewhere on Staten Island is a deposit that one man at least thinks valuable. The use to which he puts the peat moss that he digs there is to adulterate rubber with it. Whether it has yet been proven to be of any decided advantage, we do not know. Certain it is that the moss vulcanizes, and apparently stands even the heat necessary for producing vulcanite. No, we don't know just where this mine is, except that it is on Staten Island. If, next summer, there are those who do not fear the mosquitoes of the swampy interior of that *terra incognita*, perhaps it would be wise for them to prospect a little.

—The Woonsocket Rubber Company has in its office at Providence an interesting collection of articles of native use received recently from the country bordering upon the Amazon River. Among other things there is a very complete set of the implements and utensils used in gathering and curing rubber gum. It is an interesting feature that every article has been in actual use. Here are the rude clay cups which are stuck to the rubber to catch the flowing sap, the large earthen jar covered with wicker work, which the native straps on his back and into which he empties the little cups while he passes from tree to tree, and the paddle with which he smokes or cures the sap, now coagulated into gum, over the fire. There are still other articles used in the same industry. There are splendid specimens of bows and poisoned arrows. One bunch of the

latter was used by warlike natives in an attack on the rubber-gatherers, and one of the broken arrows, still marked with blood, was taken from the body of a Spanish girl killed in the attack.

—It is reported that one of the principal agencies by which the removal of the export tax on rubber at Para was brought about was the action taken by the exporters in Para themselves. These exporters, it is reported, united under the leadership of Mr. Sears, the agent for William R. Grace & Co., and agreed that they would not buy rubber from the receivers (the agents of the producers) unless they (the receivers) paid the tax themselves. The exporters thus compelled the receivers to deduct the tax from the quoted market price of the day. The receivers were, of course, in turn compelled to make the producers pay the tax by taking about one per cent. less than the market price. The exporters are generally the agents of foreign houses doing a rubber business in Para. The receivers are the agents of the producers, who ship the rubber from the interior to Para, for sale and export.

—Here's a new use for rubbers: A female lawyer in Chicago, being ordered out of a court-room by the janitor, pulled a rubber sandal from her foot and gave him a sound drubbing.

—The question is asked, says *Boots and Shoes*, why, if the mills are losing money at present prices, they do not stop running. The reason is found in the fact that rubber shoe makers are skilled laborers, and it is better for a mill to lose money than to allow its help to be so scattered that it may take two years to fill up the ranks again.

—The National Rubber Company is preparing to make a specialty of tennis goods this year, and their new price-list has been issued.

—The factories of the Boston Rubber Shoe Company, at Edgeworth and Malden Fells, Mass., were shut down April 10th for three weeks to make repairs and take account of stock. This action affects about 3000 persons.

—Lord Shrewsbury, the owner of so many of the best cabs in London, is a firm believer in rubber. "All my cabs," he says, "have India-rubber tires on the wheels, which makes them run smoother and last longer."

—Mr. Joseph Banigan is back from a trip South, where he was ordered to go by his physician for rest and recuperation. The prescription appears to have been a wise one, for he returns much refreshed.

—What has become of the compound made by distillation from the sap of the white birch? It was, if we remember rightly, to be of great use in rubber work, almost taking the place of fine Para. Possibly the inventor has learned, like many another, that an apparent substitute for Para is easy to get, but a genuine one is a very elusive thing.

—A contemporary speaks wisely of the $100,000 that has been made from rubber pencil tips. Just which of the many hundreds of thousands that have been made in this part of the rubber business referred to is difficult to state. Perhaps it is the money made by the Woonsocket Rubber Co., who held the pencil tip patents during their life, or it may refer to any one of the great pencil companies who during the last ten years have made thousands of tons of these goods.

—The first rubber-soled shoe for sporting purposes was made in France and became at once popular. It is said that in this country the first pair were made by the New Brunswick Rubber Co. for Peck & Snyder of New York. At the present time this company sell 5000 pair a year for tennis, yachting and gymnasium work.

—The only tennis ball made in the United States is that manufactured by the New York Rubber Co. for Peck & Snyder. For a long time the American manufacturers, the New York Co. among them, have been striving to equal the foreign balls. Their critics were of course the tennis players, and it was some time before they could be suited. The new ball is a beauty, and as tense and lively as could be desired.

—Those indefatigable workers, the Wellman Sole Cutting Machine Co. of Boston, have within the past sixty days made wonderful progress in simplifying their cutter. There is no doubt now but the machine will be a success, but it is interesting to contrast it with the first one they built. One would hardly recognize any relationship between the two machines, so great is the improvement.

—The Boston Gossamer Co. have nearly completed their new plant at River Street Station, Hyde Park, Mass. Viewed from the railroad the handsome and spacious factory buildings, the tastefully arranged grounds, and the acres of new solarizing tables form a very pretty picture.

—A new move on the part of the Thomson-Houston Co. of Boston is to arrange their insulation of the overhead wires for railway use so that it shall be in sections instead of being continuous. This will prevent a stoppage of the whole line in case of a break.

—A little wooden ball attached to a piece of rubber thread cast upon the troubled waters of the toy market, returned in the shape of many thousands of dollars. Fifty thousand dollars is said to have been realized by the inventor of the "return ball."

—"All hands are up" in favor of the Boston Rubber Shoe Co.'s ventilating tennis shoe. If any one is in doubt as to the meaning of this note they will do well to look up the old-fashioned "town meetin'" advertisement of the company that has lately engaged the attention of the public.

—Since Tuno gum has shown itself such a treacherous friend to those who trusted to its sticking qualities in friction, it may be well to remind the rubber trade that there is a gum cheaper, just as sticky, and one that never disintegrates, or turns acid. We refer to the Adamanta Friction Resin, the good qualities of which many manufacturers already know.

—The pessimist claims that the base-ball craze has a bad effect upon workmen, in that it makes them discontented with the drudgery of labor, and wish either to sit on the bleaching boards or to be out on the diamond. This would not seem to be the case with the hands of the Boston Woven Hose Co. They are all base ballists and have a fine team. When the season closed the active members of the Nine, who had been pretty well over the country hunting for glory and earning it too, settled down to belt and hose making with as much vim as ever. A good ball player is not necessarily a hose maker, but he certainly should be an expert at "belting."

—Mr. John Banigan, purchasing agent of the Woonsocket Rubber Co., tells with great gusto of an inventor who called upon him with a new process for making the soles of rubber boots wear longer. After being assured that no one was listening to steal his cherished secret, he divulged it, and it proved to be a mixture of fine sand and rubber cement, which was to be plastered on the boot sole.

"But won't it wear off very quickly?" asked Mr. B.

"No, sir."

"How do you know?"

"Know? why, I fix my boots with that compound *every week!*" was the triumphant reply.

—The Boston Rubber Company's Boston office narrowly escaped being burned out a few days ago. As it was, the damage was about $300.

—The factory of the Candee Rubber Company was shut down during the first week in the month to take account of stock and inspect the machinery.

—The forwardings of rubber goods from Boston during the month have been very large. In one week 3282 cases went to Rinage, Bertsch & Co., Grand Rapids, and 3546 cases to Childs, Groff & Co., Cleveland. The week before as many more went to the latter firm.

—One thing retailers may be pretty well satisfied about this season is that no new styles will be brought to their notice for some months to come. There is too much stock on hand for that.

—Notwithstanding the advance in prices in rubber, one St. Louis concern reports sales for February fully 50 per cent. ahead of Febuary, 1889. Other firms are believed to have had a similar experience.

—Mr. C. S. Knowles, of the Star rubber Co., Boston, is the inventor of a very neat article in rubber, called the "Knowles Coupling Sleeve." One part of his circular is so characteristic that we quote it. He says:

"I am tired of having patents infringed, and propose to sell this article so low that my respected enemy the infringer will transfer his abilities to some one who is making more money on his patent."

He is sending out envelope samples free to any dealer who may want them.

—Seventy-five weavers, at the works of the Elastic Web Co., are out on a strike. Their grievances are the putting in of new machinery and the employment of non-union men. On the first count it would be well for them to remember that once there were parties who opposed the railroads, because they would injure the stage business; but the railroads came just the same.

—As the rubber manufacturers are large users of burlaps, they will be interested to know that a mill in Chelsea, Mass., is now turning out quite a fine quality of this kind of fabric.

—The "hunting woman" in old England, if she be at all fashionable, is beginning to cast longing eyes at the divided skirt that is being widely advertised; for with it she can ride man fashion. Why would it not be a good idea for a skirt to be made with two elastic gussets, extending from waist to hem, which, if they did not assist in riding would at least allow of a free and unhampered walk.

—The consumption of rubber in the United States in 1889 was estimated at 31,000,000 pounds, against only 19,000,000 pounds for 1880.

—A society journal observes that the list of favors for dancers at cotillions has been extended until almost nothing now is left to be offered but rubber overshoes.

—G. B. H. asks a formula for covering cracks and seams of rubber boots. A. Use a solution of gutta percha in bisulphide of carbon.—*Scientific American.*

—Three-fourths of all the rubber used in the manufacture of foot wear is of the description known by the trade name of fine Para.

—London shopkeepers are obliged to keep the sidewalks clean in front of their doors. For doing this effectually on muddy days, a stout felt or India rubber apparatus at the end of a pole (a rake with an elastic substance in the place of prongs) is used at large stores or fashionable shops.

—The superior quality of our rubber goods is attracting attention abroad. Says the *Daily Mail*, of Glasgow, Scotland: "American makers of mackintoshes and other india rubber goods are circulating statements to the effect that English goods are being less and less used. They say that owing to the climatic season, English goods do not wear well, turning stiff and parting at the seams when exposed to heat while in a damp condition, while on the other hand American are free from this fault. As this is obviously an interested statement, we can form no opinion as to its value until we hear the other side of the case, but British makers will be interested in knowing what their rivals say about them."

—What is known as mineral India rubber asphalt has been produced lately from what was regarded formerly as worthless refuse. It is produced during the process of refining tar by sulphuric acid, forming a black material very much like ordinary asphalt, and elastic like India rubber. When heated until the bulk is reduced 40 per cent., a substance is produced, hard, like ebony. It can be dissolved in naptha and, it is said, is an excellent non-conductor of electricity, which makes it valuable for insulating telegraph wires.

—A correction is made by the *Pioneer Press* of its recent article on the manufactures in St. Paul and Minneapolis, including rubber stamps in the list of articles not made in those cities. The fact is that there are several concerns in each city manufacturing rubber stamps, seals, dies, and other goods in that line. One St. Paul manufacturer, D. P. Roussopoulos, employs nine people in his factory and sends his goods pretty generally over the United States. In Minneapolis there are five or six flourishing factories of the kind. Two houses in Minneapolis which handle rubber goods, says the *Sentinel* of that city, carry as large an assortment as any stores in eastern cities. The total business of the two firms in 1889 amounted to $400,000.

—A French company offers to supply celluloid for the sheathing of ships in place of copper. In experiments by M. Butaine, plates of celluloid applied to various vessels were removed six months later, when there was found an absence of marine vegetation, which was abundant on parts of the ship uncovered. The color of the substance is indestructible; the thickness may be reduced to 0.0003 meter; and the qualities of elasticity, solidity, impermeability and resistance to chemical action, are all in favor of the use of celluloid.

—The next generation will not be able to realize how civilized people ever existed without the aid of rubber goods. Yet it is not so very long since attempts were made to supply "elastic side boots" without the use of rubber. It is no wonder, however, that they failed to become immediately popular. The sides were composed of brass springs, about an inch thick, covered with kid. They must have been curious and clumsy-looking contrivances, as uncomfortable to the foot as they looked. The springs frequently stretched out, never to return to their place again, and left the ankles without any support.

—The prettiest, sauciest, daintiest maid of the season adorns the cover of the catalogue issued by Barker & Co., of 27 Maiden Lane, New York. She is out in a driving rain storm, but is

clad in a fashionable rubber garment, presumably silk, and the elements do her no harm. The legend expressed by the artist's pencil cannot fail to be understood, and that, too, to the benefit of Barker & Company.

—The Pittsburgh *Dispatch*, in its last comment on the supposed formation of a rubber trust, is really brilliant. It remarks that this has been done so often that the public recognize it as a gum game.

—It is said that celluloid films, or indeed any broken articles of this substance, may be easily mended by coating the edges with glacial acetic acid and pressing them together.

—Mr. J. Fred. Doty, of the Atlas Rubber Co., of New York, has gone to Old Point Comfort, Va., with his wife, for a couple of weeks' rest. Mr. Doty has been feeling considerably under the weather for some little time past, and this spring vacation will without doubt do him good.

—For the information of the many rubber men who are practising with vaseline atomizers, we beg to say that the liquid that has hit the nail nearest the head in this work is called albolene. It is put up by McKesson & Robbins of New York. We don't get a cent for this puff, be it known, but do it out of sheer good-heartedness. When next we are down on Fulton Street, however, it will be a cold day if we can't get a pint of it for office use.

—An English patent for insulated wire covering consists of ten pounds of Para rubber, twenty pounds substitute, four pounds black ozocerite, eight pounds bitumen, eight pounds finely powdered leather fibre, twenty pounds infusorial earth covered with a varnish made of Kauri gum or chemically hardened resin.

—Forty thousand pairs a day were made during a part of last month by the Boston Rubber Shoe Company. Estimating that the shoes manufactured average ten inches in length, if placed end to end, the product of one day's work, would reach six and one-fifth miles. At the same, the production for a year would reach nearly 6000 miles.

—The fit of rubber shoes is receiving a good deal of attention. There are some anatomical shoemakers who have all the rubbers they sell made to order by the companies to fit their several sizes. Sometimes these shoes are so different in shape from ordinary footwear that these special makes are a necessity.

—The Standard Rubber Company dedicated the new addition to their works at Brockton, Mass., recently by a ball. The new portion is 150 feet deep and has a frontage of 50 feet. On the first floor the three offices occupy the front portion, while to the rear is the showroom. The second story is to be used entirely as a stitching room. Nine years ago the Standard Company started a small factory at Brockton, with twenty hands. They then had factories in different parts of the State, but their entire plant is now located at Brockton. At present they employ about 100 hands, though at times they have twice that number on their roll, and $70,000 a year is required to pay the help.

—In the window of the Gutta Percha and Rubber Manufacturing Company, in Warren Street, New York, there are enormous mahogany-colored balls, that look, in all except color, like the biggest pumpkins that ever took a prize at an agricultural fair. These great globes are made of nothing less than pure Para rubber, and at the present time are valuable. The largest weighs 323½ lbs., and is the biggest ham of Para ever brought into the country. When it is remembered that the hams of Para rubber are built up over wooden paddles, by dipping in the rubber milk, and drying—the process being repeated again and again until a goodly sized lump is formed, one cannot but picture the exertions of the half naked Indians who received the New York order for a lump as big as it could be made. How they must have sweated as the ham grew in weight, past the usual forty pound mark, to fifty, one hundred, two hundred, three hundred; and through the exertions of the overseer, to three hundred and twenty-three pounds! It was by all odds the biggest lump that ever came down the Amazon. Small wonder that the rubber crop is short this year.

—Women in their invasion of every field of labor, have not failed to place many thousand models of inventions by their sex in the Patent Office. Many of these, of course, are connected with the matter of dress. "One of the bosom pads," says a recent writer, "is of rubber, made on a framework moulded to the desired form, and when inflated it approaches the size of the smallest toy balloons. It is so made that the stretched cover strains a wire framework outward and causes the rounded portion to spring back if it should be pressed out of shape in a crowd, but as I looked at it I thought of the report that might follow should the pins which a woman often sticks into this part of her dress strike too deep and penetrate the rubber."

—More attention has been paid in the past to the economical use of steam than to its cheap development. We give below a letter from The Alpha Mills, Charlotte, N. C., which shows that much may be done in this line, and that speaks well for the grate bars manufactured by our New Brunswick friend, Mr. Wm. E. Kelly, proprietor of the National Iron Works.

Send us a set of grate bars for our new boiler, same as the other two sets we ordered from you last May, 1889. We have had the other two sets in constant use for eight months, and are pleased to say that after a thorough examination we are unable to find any indication of warping or burning, and so far as we can see every leaf looks about as good as the day they were first put in. By actual test we find a saving of 16 per cent. of coal over ordinary grate bars formerly used by us. We congratulate you on having what we consider the best grate bar that we have seen, and we have investigated the merits of several other makes most prominent on the market. Yours truly,

"W. S. MALLORY, Tr."

—In the past most of the retail rubber stores in New York have been situated down town. The Hodgeman Rubber Company have, however, opened an up-town store on West Twenty-third Street, adjoining the Fifth Avenue Hotel. Situated as it is, right in the heart of the fashionable retail district, the fine goods of the company will have a splendid chance for exhibition and as they are displayed, are most attractive.

—Among the things that the rubber manufacturers should have a look at is the Creamer Automatic Steam Pump Trap, advertised in this number of the INDIA RUBBER WORLD. The work that it does and the saving that it effects are remarkable. The Safety Electric Construction Company, No. 45 Wall Street, New York, are ready to answer all questions concerning them.

—There is some little curiosity on part of the rubber trade to know who will be the new president of the Wales-Goodyear Company to succeed the late Governor English. Several wealthy Connecticut gentlemen who are more or less interested in the Wales stock are already spoken of. It is not unlikely, however, that the man who gets this prize will be named by George A. Lewis, who owns or controls a large block of the stock and who has developed, during his connection with the concern, into one of the most successful rubber manufacturers in the country.

—A bright inventor recently discovered that the handsomest gossamer to be imagined could be made of a combination of glue and glycerine in place of rubber. He was delighted with his discovery and had visions of millions of dollars until he learned through a friendly chemist that both glue and glycerine having an affinity for water would be far from waterproof.

—Mr. Frank Magowan is in South America hunting for an electrical plant for Edison. This is not the Hon. Frank A. Magowan, of Trenton, who has no need to hunt for plants either manufacturing or herbaceous, as he has four large and prosperous ones of the former variety in New Jersey's capital.

—A symphony in white, brown and gold, in a white frame hangs in our office, the gift of the Boston Rubber Shoe Company. In the upper left-hand corner is a beautiful picture of Factory No. 1, while in the lower left-hand corner is Factory No. 2, with the rocky heights of Middlesex Fells rising in the background, The seal of the company and a few well-chosen words regarding it in gold complete the picture.

—A new feature in the shipment of chalk to this country is the loading of steamers with it in the place of sailing vessels. At the H. F. Taintor works at Long Island City, there is discharging at the present time a steamer 285 feet long that brought over 2350 tons of chalk, which is one of the largest single shipments ever made.

—An interesting relic of old Dr. Mattson is to be seen at the office of the Mattson Rubber Company, No. 8 College Place, New York. It is a handsome desk of mahogany finished inside in bird's-eye maple, and arranged to contain a host of papers and rubber samples. A curious curtained wing on each side, also full of shelves and pigeon-holes kept the old gentleman in touch with all that he manufactured.

—Mr. George Harrar, Vice-president of the McKirgan Oil Company, Newark, N. J., has sold his rubber cement works to E. D. Woodruff of the same city. The company, known as the Union Rubber Cement Company, make a very fine quality of rubber cement which is sold largely to the shoe and hat manufacturers.

—Good luck seems to be encamped in Akron, Ohio. The tornado that recently devastated so many towns in Ohio, on reaching this thriving centre of the Western rubber trade jumped entirely over it and landing about six miles beyond, continued its work of destruction.

—Mr. George Meeker, for eleven years connected with the Fairfield Rubber Company, as their sales agent, has accepted a position with the Metropolitan Rubber Company, of New York. Mr. Meeker will as of yore get round among the trade at stated intervals and no doubt will secure his share of orders.

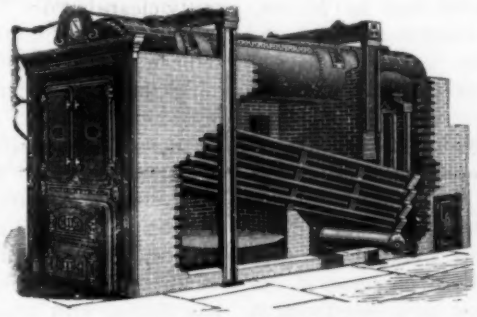
—A very complete catalogue of temperature and pressure indicators for use in rubber, celluloid and insulated wire factories comes to us from Hohmann & Maurer, No. 90 Fulton Street, New York. Their goods are quite well-known all over the United States and the users testify to their durability and reliability in the highest terms.

—The Boomer & Boschert Press Co., Syracuse, N. Y., write us under date of the 7th inst.: "The Cleveland Rubber Company, Cleveland, Ohio, have placed an order with us for a 44x72 double cylinder hydraulic vulcanizing press."

—The Boston Rubber Shoe Company are very busy, and consequently will not shut down for the usual stock taking until April 21st, and then will stop work only for a week instead of the customary three weeks.

A Good Boiler for Rubber Factories.

IN the manufacture of rubber goods, the large amount of steam used renders the item of cost of steam supply an important one, and the attention of manufacturers can be profitably turned to the boiler room as the seat of power and a place for improvement in most cases. There are hundreds of plants where the old methods in the boiler room are continued and a large waste of fuel incurred in the use of boilers improperly made and set, ill-suited to the conditions and unfit for the service demanded of them. Modern improvements in this line have been so marked that an important reduction in the cost of the whole product of a factory may often be reached by a change in boilers. The "National" water tube boiler, which we here illustrate, is an important improvement, reached after years of experience. This boiler long since passed the experimental stage, and has attained an established reputation, and the boilers are now in use in nearly every State in the Union, and have been shipped largely to other countries.



They differ from the ordinary form of boiler in many important particulars. The water, being contained in the tubes and not around them, as in ordinary boilers, is subdivided and a greater amount of heating surface is obtained in proportion to the amount of water contained in the boiler. The tubes being of small diameter and very thin, the heat is more readily transmitted to the water inside of them, and the maximum amount of dry steam is generated with a minimum expenditure of fuel. The advantages of higher steam pressures are very marked in many cases, and the tendency is strongly to an increase of boiler pressures. In rubber factories, where high temperatures are needed, as in vulcanizing, these high temperatures may be reached with much greater economy through the use of steam at a pressure above 100 pounds to the square inch, and a much smaller amount of radiating surface will give better results at much less cost of fuel. The "National" water tube boiler is so constructed that even at extraordinary pressures it is safer in use than the ordinary boilers at low steam pressures. This element of safety ought to be considered in the purchase of a boiler, and it is claimed with reason that the "National" boilers are absolutely safe from disastrous explosions.

The National Water Tube Boiler Company have the best facilities for the manufacture of these boilers, and are located at a point where shipments may be readily made to all sections, New Brunswick, N. J., on the main line of the Pennsylvania Railroad, only a few miles from New York City.

A Lesson From Abroad and One on the Spot.

WHATEVER praise can be accorded to the New York Senate Committee on General Laws for the result of the electrical investigation is chiefly of a negative character. It was in the power of the committee, in the fulfilment of their self-imposed task, to do much harm to the electrical industries, which have already suffered more than enough from the rabid onslaughts of the daily press during last year. The committee, however, presented a studiously moderate report, less practical, it is true, than it would have been if some of the members had been technical men conversant with the subject which they were investigating, but calculated withal to allay public apprehension rather than to excite it, and for that, at least, we may be thankful. But our prime object in inditing these lines is to thank the committee for a little lesson in electrics drawn from a source whence American engineers generally profess that they have little or nothing to learn. It has become almost a stereotyped reproach against England, that in matters electrical she is "conservative," "slow" and "behind the times." In some directions such as electric traction and street lighting on an extended scale, perhaps these remarks apply, but from the answers furnished by four such eminent English electricians as Messrs. Thomson, Preece, Forbes and Hopkinson to a set of questions propounded by an adviser to the Senate Committee, it would appear that in the somewhat important question of the distribution of high-tension alternating currents by means of underground conductors we have something to learn from our conservative, slow, behind the times British cousins.

All four of the above named electricians believe in the use of high tension alternating currents, and state that they can be distributed safely and successfully by means of underground conductors, provided that good insulation is used and the work well done. Cases are cited where high-tension alternating current systems have been working for years, the distribution being effected by underground cables, and no failure or accident has been recorded. Mention is made of a high-tension continuous current installation wnere underground conductors have been in use during eight years without giving any trouble. It must have been rathe' a curious sensation for the electric light men who only a short time ago put themselves on record to the effect that the distribution of current for electric lighting by means of underground conductors was utterly impracticable, to learn that this same thing had been done in England, where electrical progress is so "slow," for years past and is an assured success.

Whether the sensation was agreeable or otherwise, we trust that all American electric light engineers will take the lesson to heart and profit by it. The keynote which runs through the whole of this eminent foreign opinion (a condensed abstract of which we give on another page) is found in a strenuous advocacy of good insulation and careful construction, two important points which we also have insisted upon in previous writings on this subject. The conductors employed for electric light distribution in England are almost invariably insulated with high-class vulcanized India rubber, or with a similar grade of insulation, and every precaution is observed to protect the cables from mechanical injury. When our electric light corporations reconcile themselves to the sacrifice of a little extra profit by investing in good insulation we shall hear of more successes and fewer failures with the "deadly alternating" than has been the case in the past.

Some of our readers may think that we have unduly emphasized the teachings conveyed from across the water on distribution of high-tension currents for electric lighting by means of underground conductors. To these we take pride and pleasure in pointing out that much has also been done at home, right under our very noses, in New York City. In this issue is printed an abstract of a paper on the New York subways, by William Maver, Jr., which contains some interesting information respecting the amount and description of underground cables in use in New York for electric lighting purposes.

Few people would believe that there are at present between two and three hundred miles of electric light conductors actually working beneath the streets of New York City, but Mr. Maver shows such to be the case, and the length is being increased with great rapidity every day. It is pretty clear that our British cousins have had longer experience than we in the matter of underground distribution and can give us valuable "pointers," but this, like all other things, has an explanation and may be adduced partly to restrictive legislation and partly to characteristic caution and conservatism. Here, the electric light manager had, at first, no restrictive legislation to deal with; and, throwing caution and conservatism to the winds, like all true Americans in pursuit of the Almighty Dollar, he strung up his wires regardless of how they were insulated, or, in fact, whether they were insulated at all, and how secured. He was playing with an edged tool, and if he did not quite succeed in cutting his own throat, he inflicted on himself some severe wounds and administered a *quietus* to various of his employees.

To-day things have changed. The wires have been forced underground—in an undignified manner, it is true; the burial rites were curt and scant, but, as is the case with mortals who have ceased to be, having been put underground they must stay there. The difficulty has to be faced; it has been thrust upon the American electric light industry in spite of the most strenuous resistance, but American enterprise is equal to the occasion. A few years ago the insulated wire industry in this country was comparatively unimportant; to-day it is of surpassing magnitude and with a continual upward tendency. The three hundred miles of underground electric light wire working in New York City to-day, and working well, represent four different types of cable, in three of which rubber is the principal constituent. The famous Silvertown type of insulation, which is recognized as the standard electric light cable in England, is manufactured in New York City with excellent results.

It is a truism that when a demand arises it will be met. This has been the case here with conductors for under-

ground electric light circuits. The demand has arisen comparatively suddenly, and it is one of no small magnitude, but there are at least half a dozen high-class firms engaged in coping with it. The insulation of underground conductors for high-tension currents is one of the most difficult problems with which the electrical engineer has to grapple, and it is only to be solved by the use of high-class material and the best of workmanship. We think we are justified in saying that the American manufacturer is fully able to supply both requisites. The subways of New York City afford ample proof of the assertion.

Underground Cables in New York.

IN a paper on "The Practical Working of the Electrical Subways of New York City," recently read by William Maver, Jr., before the American Institute of Electrical Engineers, some interesting details were given of the types of cable in use for electric lighting purposes. These consist, exclusive of the Edison system of underground mains, which are not laid in the subways, of four different classes—namely, Standard Underground, Bishop rubber compound, Safety insulated and Cobb vulcanite paraffine cable. All of these are lead covered, for protection against mechanical or chemical injury. The insulation of the Standard Underground is of fibrous material, saturated with insulating compound, the whole being sheathed with lead. There are ninety-five miles of this cable in use in the new York subways, and more is being put in every day. The thickness of insulation used in these cables is 5-32, 6-32 and 7-32 of an inch.

The insulating material of the Safety cable is a rubber compound. It differs somewhat from the general run of rubber compound cables, in that the insulation is applied to the wire without seams or laps of any kind. This compound is vulcanized to a moderate degree of hardness, sufficient to prevent decentering of the heavy conductors which it insulates, but it retains a high degree of flexibility. A special thickness of this insulation was made in one instance in response to a call for a cable to withstand a pressure of 7000 volts for arc lighting. The thickness of the insulation is .238 inches, the conductor being No. 4 B. and S. gauge. There are now over sixty-five miles of the Safety cables in actual use in the subways, on electric light circuits carrying continuous and alternating currents of from 1000 to 2500 volts.

The Bishop rubber compound is of the well known Silvertown type; having first a coating of pure rubber, next a coating of vulcanized rubber, over this a lapping of rubber strip, and finally of taping or braiding. There are two sizes of this cable in the subways, namely, No. 4 B. and S. and No. 6 B. and S. The thickness of the insulation is 4-32 of an inch. About ten miles of this cable are in successful operation, carrying alternating currents of 1000 volts, and five miles on arc circuits of 2500 to 3000 volts. More of this type of cable is continually being placed in the subways. The Cobb vulcanite cable is insulated with hard rubber compound, the conductor being loose within the insulating material. The space between the insulator and the lead pipe is filled up with paraffine. There are about twenty-five miles of this cable in the subways.

All of these cables are guaranteed by the manufacturers for three years, but this is not to be taken as the limit placed upon the life of the cables. In cases where they have been in continuous service for a year tests show that the insulation resistance is practically the same as when the cables were laid.

The Misuse of Sulphur.

AS a vulcanizing agent, there has not appeared up to the present time a material which may be as widely used as sulphur. There are many ways of hardening or toughening rubber compound and sometimes compounders may be misled, in thinking they are not using sulphur (which a writer in THE WORLD seems to think such a bugbear) but in nearly every instance, they do use it, and must use it, although it sometimes is not like sulphur in appearance. The writer has heard for the past ten years of "Non-blooming rubber," but has not had the pleasure of seeing any goods which were made as such, which would hold together over six months. I refer to goods in which any elasticity is required; they are invariably dead to the touch.

Now a word as to the misuse of sulphur. The writer at one time visited a factory devoted largely to making mechanical goods, and noticing the large amount of sulphur which the compounders placed in the compound boxes, (probably three times what it should be) asked the superintendent why he used so much sulphur. His reply was:

"Well, it cheapens the batch, being light, and seems to work all right."

At the same time he was puzzled to know what caused so many places in his goods which looked, under a glass, like the crater of an extinct volcano, and also why his goods had such a harsh feeling. But he was wedded to sulphur and for all the writer knows is using it in abundance to this day. Goods made up with such an excess of sulphur appear all right at first, but it is not long before they take on, or more properly throw out, an incrustation of pure sulphur which ruins their appearance and utility, becoming an eye-sore in any well-regulated dealer's assortment. But such goods are an exception, as a glance at any of our first-class rubber store windows will show. There may be a slight bloom on 90 per cent. of the articles we see there, but not enough to mar their appearance or utility, excepting in colored goods, which in all cases should be thoroughly potashed before reaching the dealer.

To obtain the best results, and in fact the only accepted way to compound with sulphur, is to use only one ounce to a pound of rubber. I am referring to soft rubber only in this article. The cure may be a trifle longer than in the case of our friend of sulphur fame, but of what account is a few minutes in a heat, if we can have goods which we

can handle, and see without mining through an incrustation of sulphur? SUPERINTENDENT.

[Our correspondent is a practical rubber man and well up in his line of business. His influence with "Hypo" does not seem to have been satisfactory, but perhaps he did not get the right kind. The idea that after all sulphur is and probably always will be, the main dependence in vulcanization is correct, although manufacturers of fine goods sigh for something better.—ED. INDIA RUBBER WORLD.]

Every-day Work in the Factory.

BY NICK R. AUGUR.

FOR some time past we have been deluged with questions, so much so that we have decided to start a Rubber Question Book. As a beginning we pick up whatever comes first.

Question. How can I keep sulphur from growing acid?

Answer. Keep the packages closed until you need to use it.

Q. Why does sulphur spoil so many of my goods?

A. It does not. The chances are that you do not use it correctly.

Q. What do you think of quick heats?

A. For cheap goods they are all right. If you are trying to make fine goods a slow heat will help you wonderfully.

Q. I am thinking of starting into the manufacture of rubber shoes. Have about ten thousand dollars to invest. What would you advise?

A. Keep out. Ten times that amount would not be enough to do the business right.

Q. Why is it that litharge makes goods cure quicker?

A. I don't know. If I am not in error the professors at a leading scientific school in this country were floored by that same question. The fact, however, remains, that it is a great help; indeed, what the dry heats would be without it, is hard to prophecy.

Q. Has pure silicate of magnesia the drying effect that ordinary magnesia has upon rubber?

A. No. If you will look in the March number of the WORLD you will find an article on silicate of magnesia, which is a valuable adulterant for rubber.

Q. What is the heat required to cure soft white rubber?

A. With six per cent. of sulphur a two-hour heat at 285° Fahr. will do very nicely, provided you are running on a large scale. Much depends upon how heavily your goods are compounded, how quickly the heat gets at your moulds, etc.

We find we have run out of questions, and as we intend only to answer such as come from seekers after information, we will let the foregoing stand for the first chapter.

The question regarding litharge brings back a story told by a well-known rubber superintendent, which bears pretty hard upon scientific advice upon rubber topics, as compared with practical knowledge. It seems that, a number of years ago, a large factory running successfully and making money was brought in close relationship with a gentleman of attainments in certain branches of chemistry, but with no knowledge of the rubber business. When he became somewhat acquainted with the manner of working rubber he felt that it was his duty to show, and show at once, that the processes were crude, and, in a word, that the whole business was run by a rule of thumb. He, therefore, struck right at the root of the matter, and, getting the owners together, said:

"Gentlemen, I see you use sulphur in your rubber. Now, why use it? Equally good results may be obtained without it. With careful manipulation the rubber may be made to vulcanize itself."

In a long and plausible argument he convinced his audience that he was in the right. His learned terms and entire confidence carried the day, and the sulphur came out of the batches and his new plan was put in operation. It was not a complete success, for, first and last, it cost the company about twenty thousand dollars, but even then they could not prove to their advisor's satisfaction that his theory was wrong even in part.

Now we do not wish to be understood, for one moment, to decry the advantage of a knowledge of the chemistry of rubber, its adulterants and its compounds. We wish merely to indicate our firm conviction that the ordinary chemist is a dangerous man to consult. We believe that every large rubber factory should have a rubber chemist. It would be a good thing if every superintendent had a knowledge of this science.

Some of the most successful superintendents have a knowledge of it, while others equally successful have not. A few ounces of horse sense, diffused through the gray matter of a rubber man's brain, will go a deal further than a smattering of any science. There is yet a great deal to learn in this industry, and those who are best fitted by a thorough mill education, supplemented by a laboratory experience, are the ones who, in all human probability, will come the nearest to getting at the root of the valuable discoveries first. At the same time there comes to us the prophecy of one of the brightest of rubber manufacturers:

"One of these days some farmer will stumble upon a process that will upset all of our theories and make our elaborate plants of no account."

An Open Letter.

NEW YORK, April 15, 1890.

Mr. Webster Norris, Inventor of the Micrometer Dial Gauge:

DEAR SIR:—You will pardon me for addressing you through the columns of a magazine, or, indeed, addressing you at all, but it seems to me that you are just the person that both the public and myself have been looking for. You have invented an instrument for gauging the thickness of sheet rubber, something that was needed badly. Now can't you go further and invent another attachment for the calender? Much of the trouble that comes from calendered stock is due directly or indirectly to the overheating or

the underheating of the calender rolls. Could there not be some kind of thermometer attached to the rolls that should definitely show just what heat existed at the surface, and not leave it to the judgment of the calender man? Perhaps, before this is done, it would be well to have the pipe that carries the water to the inside of the roll so placed that it would cool the whole inside surface at once, rather than begin at the further end. Hoping that you may see your way clear to invent something of this sort,

I am very truly,

VOX CALENDERI.

Rubber Tests by the French Government.

THE French Government is constantly on the alert to discover methods for testing various supplies and also for preserving goods that are in any manner perishable. Of the goods which the government keeps in stock, those of India rubber in years past have been subject to a great deal of deterioration, causing considerable loss. Articles that were packed in boxes, such as syringes, bandage gum, drainage-tubes and surgical rubber goods, unless made of hard rubber, were particularly liable to deteriorate, and in many cases were found to be absolutely useless just when most needed in hospital work. To overcome this trouble the Minister of War has advised certain precautions with the hope that the loss may be made less. The commissioners advise that rubber bandage gum should be handled quite often; that is taken out of the boxes at least once in two or three weeks, manipulated and then put back. The drainage tubes, they advise, should be hung up in a cool place or soaked in some fluid that can in no way putrify. In fact, they advise that all objects made of rubber should be kept in a cool, damp place at an even temperature, and especially sheltered from light, heat, and frost. Of course in a great many cases it would be ridiculous to enforce these conditions, but it is recommended especially that the goods should be made of the purest rubber and by manufacturers of known integrity. Their belief seems to be that the purer the rubber the less readily does it deteriorate, and they take specific gravity tests and rules for its purity. How much they get caught on substitute goods, which the French make beautifully, is a question we are unable to answer. When goods have begun to deteriorate, it is suggested that a mixture of carbolic acid and ammonia, in water, will in many cases bring them back to their normal state of elasticity and usefulness. To test a rubber shoe there are scores of formulæ, all more or less accurate, but dependent so much on a variety of contingencies that none can be said to be really reliable. In testing hose it is almost impossible to give much of an idea of what it will do except by actual wear, and so with rubber belting. It may be of interest, however, to describe briefly the manner in which the commissioners of the French navy test rubber belts, as their trials seem to be quite practicable.

In the first place, they cut samples from a rubber belt and place it in a vulcanizer, where it is left for forty-eight hours under pressure of about seventy-five pounds of steam. When taken out the rubber should not have entirely lost its elasticity if it is a good compound. The samples are then placed on the grating of a valve-box, under pressure of ninety pounds to the square inch, and are obliged to stand 9100 strokes at the rate of one hundred a minute. The rubber itself without drying by the heat should stand 17,100 strokes. Strips of leather boiled and having a section .6 of an inch square and a length of eight inches fixed between supports and elongated three and nine-tenths inches should resist without breaking a further elongation of eight inches repeated twenty-two times a minute for twenty-four hours. Stretchers in belt under the same condition should resist for one hundred hours. Under the above conditions bands of first quality rubber, perfectly pure, well vulcanized, break after 180 and 200 elongations of eight times the initial length. Bands cut from pure rubber of second quality break after being stretched fifty or sixty times. Heavily compounded rubber, or recovered rubber, or African, give results that are hardly worth chronicling.

Has Your Vulcanizer Got a Jacket On?

IT is a well-known fact that the loss of heat in steam pipes by radiation varies according to the surface exposed, and the difference in temperature between the two extremes. The surface of a steam pipe is very much hotter than the door or the outside of a house. Hence, for the same area much more heat will be carried away. It is not, however, the loss of the number of units of heat in this manner that is the particular objection, but it is the attendant results which cause a far greater loss other ways. Condensation taking place in a steam pipe, which leads directly to an engine, for instance, has two serious features. The first is that the water carried to the cylinder is likely to form what is called a water hammer, which causes a breakdown. Secondly, only about one-tenth of the heat put into the steam pipe is available for producing power, and it is only upon this one-tenth that radiation has any effect. It is on account of this that every particle of heat which radiation steals from a steam pipe leading to an engine means the loss of ten times as much heat from the fuel pile. The same facts are in a measure applicable to vulcanizers, and any steam apparatus that may be used in rubber mills. It is, therefore, a matter of the most practical economy that every manufacturer should carefully jacket all steam receptacles with some non-conducting material which shall effectually prevent radiation. In this country so many companies make a business of this work that there is no reason why it cannot be easily, quickly and cheaply done, and any one of them will effect such a saving that it will be a matter of the greatest economy.

Make Discounts Simpler.

IT HAS often been observed that the rubber company managers have peculiar methods of doing business, and some of these methods might almost be termed childish. Take this matter of discounts, for example. It is a question whether there is any advantage to anybody in selling by discounts rather than by net prices. It is true that changes are easier to announce by the discounts than by changes in the entire price list, and to this extent the discount system is an advantage. Admitting that this is a good and sufficient reason for holding to the discount system, the question then arises, why should the discount be divided? Why not announce the discount by a single rate? Instead of saying 45 and 5 per cent., why not say at once 47 per cent., or 48 per cent., or 47¾ per cent., as this is the exact figure determined upon. Of course there undoubtedly are some dealers who are slow in figuring, and who may think at first glance that a discount of 45 and 5 per cent. is equivalent to 50 per cent. off, but they must all find out the difference when they pay the bills, and the lesson once learned is not easily forgotten. When rubbers were first sold by discounts, possibly a few dealers were misled by the double rate, but it is absurd to suppose that the deception can be continued. As it is at present, the double rates only serve to give the dealers a little extra trouble in figuring the cost of their goods.—*Boot and Shoe Reporter.*

Current Gleanings.

BY LIGHTNING ARRESTER.

"THE *Electrician* Electrical Trades Directory" for the new year has appeared. This useful work is now in its eighth year of publication and has grown from a modest volume of eighty pages to a substantial tome of about ten times that numbe. The directory proper contains a list of all persons engaged in the electrical trades and industries in Great Britain, arranged both in alphabetical order and under classifications. There is also a colonial and foreign section, embracing a great number of names of electrical companies, firms, electricians and engineers in the United States and elsewhere. In this division is a goodly list of American insulated wire manufacurers, indicating that this is a growing branch of electrical industry in this country. The directory contains also much useful information in tabulated form, making it useful for reference to electrical engineers. There are tables and abstracts relating to electric machinery, carrying capacity, weights and resistances of conductors, submarine cable and telegraph statistics. Other features are a record of notable events in the electrical world during 1889, condensed obituaries of electricians, and biographical notices of more or less prominent electricians, on both sides of the Atlantic.

* * *

A notable electric lighting installation recently completed is that in the magnificent new quarters of the Progress Club, at Sixty-third Street and Fifth Avenue, comprising two 650-light Mather automatic dynamos run by two 75-horse-power Armington & Sims Engines. Over 1200 sixteen candle-power lamps are distributed through the building, some 560 being placed in the ball-room, which is a truly regal apartment. The whole of the wiring has been done with the best quality of Grimshaw white core, over 50,000 feet of this high-class wire having been used. The entire installation was carried out by the Tucker Electrical Construction Company, of this city, a firm noted for the excellence of their work.

* * *

An ingenious but impractical inventor proposes to take advantage of the property of the retina to retain the impression of a vivid light for a momentary period after the light has been extinguished, in the following manner: The current necessary to run one arc light is to be made to feed two by means of rapid interruptions and changes of destination, the current flowing for a momentary period through each lamp in turn. The rapid vibrations, says the inventor, will not be noticed, but the effect to the eye will be that of a continuous light. The scheme is so absurd that one wonders how anybody can possibly be in earnest about it.

* * *

In London they recently had a "deadly wire" scare which emanated from this city. Readers will remember that recently a horse was killed and a policeman shocked by a fallen wire in Fourth Avenue. The newspapers contained sensational accounts of the episode, garnished with a wealth of detail which was truly wonderful, in view of the fact that not a single reporter could have been an eye witness of the accident and subsequent developments. Of all these wild stories perhaps the wildest was that of the *Commercial Advertiser*, and curiously enough the correspondent of the *Daily News* selected this source of information, and telegraphed the whole story word for word, even including the bit about the wire spluttering and blazing in the gutter after it was cut down. The British public took the matter *au serieux*, and the story aroused considerable interest in London, especially as it appeared in such a trustworthy sheet as the *Daily News*, whose fame was built on its telegraphic correspondence. Other papers took the matter up and interviews on the subject with Lord Crawford and Mr. Preece were published. These gentlemen rightly stated that the story was greatly exaggerated, and pointed out the impossibility of the wire behaving in the extraordinary manner described.

Rubber for Protection Against Noise.

RECENT investigations made with a view of overcoming the difficulties caused by vibration and noise from dynamos and engines, says an exchange, have led to giving special stress to an increase of the mass of machinery to be isolated and its carriage by an elastic body, such as rubber. In accomplishing this the plan is to dig out a large trench, and at the bottom to place planking surmounted by a covering of sheet iron, on which are distributed a number of rubber cylinders, constituting at the same time an elastic and electric insulation. On the top of these cylinders there is placed a second plate of sheet iron riveted to a framework so as to give stiffness to the whole. On this is built a foundation in the usual way, provision being made for the foundation bolt, and sufficient space being left to suitably admit of periodically cleaning the trough of any extraneous matter without disturbing the elastic support. The foundation need not necessarily be of masonry, and in some cases it might be advantageous to replace it by a caisson filled with sand, an arrangement which would allow of a convenient transportation. The trench surrounding the foundation is covered at the top by plank, forming a border, but so as to allow of horizontal movement; the steam and exhaust pipes are also given a spiral turn at their upper ends, so as to permit of their being elastic under the movement which takes place, thus avoiding the springing of joints.

Why Have Acid Gums?

THERE is no question but that the method of gathering the cheaper gums has very much to do with their poor quality. African gums that contain from thirty to fifty per cent. of waste are so common that manufacturers have come to expect that sort of thing whenever they buy rubber from the dark continent. Instead of the present rough ways of collecting the gum, in which sand and bark and various matters are allowed to get into the mass, how much better it would be if a little more care were taken and the gum brought in clear and free. That this can be done has already been proved by experiment. In both South America and in Africa after the clay cups on the trees have been filled with the sap, emptied into closed vessels, and carried to the general rendezvous, it is at once thrown into a bath of water. There the rubber coagulates, forming itself into lumps and is then pressed into thin sheets and carefully wiped. The pressing forces the resinous acid out of the cells in the lump, and prevents the rotten appearance that so much African gum has. If treated in this manner the gum would be much stronger, more marketable, and bring a far better price.

JOHN DAVIS, the Montana millionaire, who died last month and was buried in his native town of Somers, Conn., made his start in life at Roxbury, Mass., in the rubber shoe factory of his uncle. He supported himself while securing an education at Andover by working in the factory over hours.

Rubber Imports and Exports.

THE latest official reports relative to the importation of India rubber into the United States show a heavy falling off for February last as compared with the corresponding month in 1889, though the falling off for the eight months ending February 28, 1890, as compared with the same period in the preceding year, is scarcely any greater. The quantities, expressed in pounds, for the different periods, are thus given in the February Summary Statement of Imports and Exports issued by the Treasury Department, gutta percha being included with rubber:

Month of February, 1890	2,544,408
Month of February, 1889	3,660,551
Eight months ending February 28, 1890	20,642,493
Eight months ending February 28, 1889	21,812,460

The value of crude India rubber and gutta percha imported during the same periods shows, though not in a definite manner, that an increase in prices has taken place. The figures are;

Month of February, 1890	$ 966,113
Month of February, 1889	1,467,399
Eight months ended February 28, 1890	8,370,389
Eight months ended February 28, 1889	8,544,808

The imports of manufactures of India rubber and gutta percha, in value, are reported thus:

Month of February, 1890	$ 25,718
Month of February, 1889	28,598
Eight months ended February 28, 1890	258,663
Eight months ended February 28, 1889	217,078

The value of exports of manufactures of India rubber and gutta percha for the month of February are thus stated:

	1890.	1889.
Boots and shoes	$ 7,967	$ 4,767
All other manufactures	61,136	70,856
Foreign manufactures of rubber	274	.....
Total	$69,377	$75,623

Measured by periods of eight months ended February 28th, the value of rubber and gutta percha exports is shown to be:

	1890.	1889.
Boots and shoes	$107,913	$ 62,397
All other manufactures	570,272	507,177
Foreign manufactures of rubber	5,460	1,442
Total	$683,645	$571,016

The number of pairs of rubber boots and shoes exported during eight months ending February 28th last was 136,077, against 69,173 pairs for the same period ending in 1889. There were exported in the eight months ending February 28th last, 236,185 pounds of crude rubber, against 350,172 pounds for a similar period ending in 1889.

The Edinburgh Exhibition.

THE most prominent feature of the Edinburgh exhibition of 1890—that of the applications of electricity—is expected to surpass anything hitherto seen. Electric welding, of which but little has been seen, will be shown on a large scale. Among many other important exhibits a complete historical collection of telegraphic appliances, promised by the British Post-Office, will doubtless prove a great attraction. The exhibition promises to partake much of an international character, very large demands for space having come from abroad, especially from France and Italy. Negotiations are in progress with leading American locomotive engineers with a view to their sending specimens of their best productions to compete in open trial with English locomotives under normal running conditions on an English line.

What are they Worth ?

IN a letter from a Connecticut Rubber man is a question which we cannot answer, so we submit it to our readers:

BRIDGEPORT, Conn., March 31, 1890.

EDITOR INDIA RUBBER WORLD:—I have found about thirty pairs of the first make of pure gum shoes. Do you think they would be of any value as curiosities? Kindly answer and oblige. They are all children's sizes. Very truly, W.

Answers to Correspondents.

WHY is it that a single belt will often drive better than a double one upon the same pulley, and with the conditions apparently the same? R. A. B.

NEW YORK, January, 1890.

[Because, especially if the pulley be small, the double belt will sometimes be so wrinkled upon the inside that it will not bed down well to the pulley, while the single one will.—ED. WORLD.]

Africa Rich in Rubber.

HENRY M. STANLEY, the great African explorer, submitted to an interview by a pushing newspaper correspondent at Brindisi, the other day, with the result of disclosing what he deems an important fact and which he said he had intended to reveal only in his forthcoming book. It is the statement that the Aruwhimi forest, which belongs to the Congo Free State, is enormously richer in everything, especially in rubber trees, than the Amazon forests. This section of Africa, he declared, would become the rubber reservoir of the universe. He declared that he did not believe that Emin Pasha would attempt to reconquer the Equatorial provinces he formerly governed in Africa.

THE following letter addressed to the general public by the Treasurer of the New Jersey Car Spring and Rubber Co. has no uncertain sound:

"RELIABLE."

Owing to the splendid success achieved by our "Reliable" brand of hose and belting, some manufacturer has placed on the market an inferior grade of goods with our trade mark on it.

This notice is to warn dealers to avoid being imposed upon, and to give notice that our brand is fully covered by registration with the Commissioner of Patents, and that we will protect our rights and will prosecute all who infringe them.

Very respectfully,
New Jersey Car Spring & Rubber Co.,
By John J. Voorhees, Treas.
Jersey City, N. J., April 1st, 1890.

Death of an Old Rubber Broker.

JAMES AUGUSTUS BETTS, a member of a well-known family in New York City, and a prominent business man, died a few days since after a brief illness at his home, No. 382 Vanderbilt Avenue, Brooklyn. He was fifty-four years old, and was born in this city. His father held a commission in the 106th New York State Militia. He early entered business life and was with J. S. Abecasis, the first broker in India rubber, for twenty years, in Beaver Street. He was afterward a member of the firm of De Long, Betts & Co., at No. 119 Pearl Street, also India rubber brokers. Mr. Betts was well known in social circles and his home for several years was in Thirty-first Street. About three years ago he removed to Brooklyn. His death was due to peritonitis, and occurred unexpectedly. The interment was at Greenwood.

Rubber Movement at Boston.

THROUGH the courtesy of Collector A. W. Beard, the INDIA RUBBER WORLD is enabled to present a statement of the importation of crude India rubber into the port of Boston and the exports of manufactures of India rubber and gutta percha for the month of March, 1890. The importation of rubber amounted to 416,909 pounds, valued at $181,576. There was no crude gutta percha imported during the month. The shipments of rubber boots and shoes, by countries of destination, were as follows:

	Pairs.	Value.
To England	5,072	$2,832
To Nova Scotia	60	113
To Miguelon and Langley	30	49
Totals	5,162	$2,994

The exports of all other manufactures of rubber and gutta percha were, in value, as follows:

To England	$6,200
To Nova Scotia	2,558
To Australia	40
Total	$8,798

The Rubber Market.

THE market has been much steadier since our last report than for the month preceding, but yet very strong. No large sales have been reported, manufacturers buying only for present needs, but there has been a good business. Within a fortnight the price has declined a cent or two from the highest point reached, which is what would naturally have been expected when buying has been in small lots. The higher prices in this market will no doubt attract shipments that otherwise would go to Europe, but if there should be anything like an average demand from the boot and shoe manufacturers it will be pretty certain to develop a shortage in the supply of raw rubber that will keep up prices. Even should this class of buyers not increase its consumption, on account of the large stocks on hand of some lines of goods, the great and constantly growing demand for rubber for electrical purposes is becoming a factor in the market for crude gum.

The present high prices cannot be expected to react upon the supply before August, at least, when the new crop will begin to come in. The market thus continues to be confronted with diminished receipts and increasing consumption, so that no influence from speculation will be needed to keep up prices.

The statistical position of the market for Para rubber is illustrated in the following statement of receipts and deliveries and the stocks here at different periods:

Stock of Para here Feb. 28th, about.	700,000 pounds.
Receipts here during March, about.	2,360,000 pounds.
Deliveries during March, about.....	2,260,000 pounds.
Stock here March 31st, 1890, about.	800,000 pounds.
Stock here March 31st, 1889, about..	1,650,000 pounds.
Stock here March 31st, 1888, about.	2,325,000 pounds.

A comparison of the prices of Para rubber during the month of March, 1890, and for the same month in the two years preceding, is shown in this table:

	1888.		1889.		1890.	
	Fine.	Coarse.	Fine.	Coarse.	Fine.	Coarse.
First.....	80	60	64½	41	75	52½
Highest.....	85	65	65	41	77	53
Lowest.....	80	60	62½	38½	75	52
Last.....	84	64	62½	38½	77	53

The latest quotations in the New York market are:

Para, fine	83-85	Loando, Niggers	60@62
Para, coarse	63-64	Sierra Leone	48@50
Caucho (Peruvian) strip	57-58	Benguela	55-57
Caucho (Peruvian) ball	64-65	Congo	44-47
Mangabeaira, sheet	42-47	Small Ball	42
Esmeralda, sausage	61@62	Soft Ball	35-36
Esmeralda, strip	58-59	Flake, Lump and Ord	34-36
Guayaquil, strip	45@52	Mozambique, spindles	50
Panama, strip	46@56	Mozambique, red ball	54
Virgin Scrap	60-65	Mozambique, white ball	50
Carthagena, strip	33-36	Madagascar, pinky	60@70
Nicaragua, scrap	58@60	Madagascar, black	49-50
Nicaragua, sheet	56@58	Borneo	38@50
Mexican, scrap	57@58	Gutta percha, fine grade	1.50
Mexican, sheet	54@58	Gutta percha, medium	90-1.00
Guatemala, sheet	50@52	Gutta percha, hard white	95
Thimbles	48@49	Gutta percha, lower sorts	50
Tongues	45@46		

"There has been very little change in the state of our money market since last month's report," say Messrs. Simpson & Beers, brokers in Crude India Rubber and Commercial Paper of this city. "The best rubber paper has been slow of sale here, mainly from the inability of our banks to buy. The reverse has been the situation with some of the out of town banks, with which a very good business has been done during the past month, at rates ranging generally from 6 to 7 per cent. An unusual demand still continues for money, from business channels, which probably will prevent much of an accumulation of reserves until next month. The supply of rubber paper is fair, and it is held mostly at 6 and 7 per cent."

Bi-Sulphide of Carbon. Specially prepared for Vulcanizing India Rubber. Samples and quotations on Application. Correspondence Solicited.
EDWARD R. TAYLOR, Manufacturer, Cleveland, O.